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THE EFFICACY OF EXISTING MEASURES FOR THE PREVENTION OF DISEASE *

GEORGE A. SOPER, PH.D.
Major, Sanitary Corps, U. S. Army
NEW YORK

I. THE CONTROL OF DISEASE

These remarks relate to an inquiry into the different procedures for the prevention of the ordinary epidemic diseases of civil life, the object being to determine the spheres wherein substantial progress has been made and the trend in which future efforts should be directed.

It is proper to state that the scope of an inquiry of this kind is necessarily limited by the fact that less than 1 per cent. of the world's population enjoys the benefits of systematic health work, and, of this small part, only a fraction compiles such records as will permit the efficacy of the work being known. It may be asked how we shall measure the efficacy of procedures for the prevention of disease if vital statistics do not afford the means? The answer is that we must do the best we can with the statistics that are available, and for the rest rely on personal observation. To a considerable extent we must use our judgment. We must note where success or failure has occurred and try to find the reasons.

When we turn our attention to the list of great epidemic diseases, we find that definite and effective procedures are available to combat most of them. The list includes plague, cholera, typhoid and dysentery, typhus, malaria and yellow fever. Such difficulty as exists in controlling these diseases lies in the practical application of the procedures rather than in the procedures themselves. The crux of the difficulty lies in the fact that the diseases in question often need to be combated among people to whom habits of ordinary cleanliness and decency are unknown. It is in consequence of this that when occasional cases of cholera, typhus and plague are brought to western countries there is no fear of them, and when they occur in some other countries it is impossible to stamp them out.

We have spoken of the control that can be exercised over occasional cases. How far an epidemic disease may spread in a sanitary environment if a sudden and extensive outbreak of it occurs is another matter. Sometimes it gains great headway and becomes ungovernable. It is one thing to deal with an infection in its retail aspect and another to manage it in wholesale proportions. This is true of all epidemic diseases. Disease is like fire: only certain amounts of it can be controlled. We can do nothing with a conflagration.

If a disease visits only a house, or barrack or ship, it can be restricted to that place. If it attacks an extensive locality or a group of localities, whether it shows a tendency to spread from one to another or affects all simultaneously, it is more difficult to deal with it. If the epidemic visits large tracts of country at once or in succession, it is practically impossible to stop it. And a disease that breaks out over vast areas of the world's surface at long intervals is entirely beyond human control. It is, therefore, only in their more restricted, not to say attenuated forms, that most epidemic diseases are controllable. Applying the illustration of fire again, we must seek out the sparks and quench them before they kindle a blaze.

So far as the greatest of all epidemic diseases is concerned, we know nothing. We do not know what influenza is nor how it can be prevented. We are as powerless against it as were our ancesters against smallpox before vaccination was discovered. It is to be hoped that the many intensive studies that have been made of the recent influenza pandemic will result in effective preventive procedures being devised, but so far nothing that is practical seems to have been brought to light.

CAUSE OF THE DECLINING DEATH RATES FROM EPIDEMIC DISEASE

In the opinion of some persons we are as helpless against many other diseases as we are against influenza. The assertion is made that it is due to their peculiarities rather than to any control that we are able to exercise that the infections which are commonly with us are not more prevalent than they are. Reference is here made particularly to meningitis, poliomyelitis, measles, scarlet fever, mumps, whooping cough and diphtheria.

Some diseases that exhibited alarming epidemic proportions fifty years ago no longer occupy a prominent place in mortality statistics. Scarlet fever, which formerly showed marked fluctuations and a high rate, taking annually, in some years, 125 lives per thousand of population, has become steady in prevalence and seldom claims more than one life in 10,000 in a single year.

Diphtheria, which sometimes ran an epidemic course for years, and in one state, at least, caused an average mortality of 410 per hundred thousand of population, has subsided nearly everywhere to a steady, low death rate of about 10. Measles, whooping cough, and other so-called contagious diseases, have shown as distinct, if a less marked reduction.

It is a curious fact that the diseases mentioned, although differing markedly in prevalence among themselves many years ago, have in recent years come down

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to a low and uniform prevalence. One is only a little more common than another. The rate in one part of the country seems to be about the same as the rate elsewhere. Undoubtedly the epidemic diseases have become less and less epidemic. Why is this? Are we to conclude that it is owing to our better knowledge of the causes and to the greater efficacy of our measures of prevention that these infections have been disappearing? If so, we must assume that our knowledge has increased over that which we possessed in former times and that our measures for combating disease are superior to those which were formerly employed. This supposition is incorrect in both of its parts. We know nothing more as to the cause of some of these diseases than was known twenty years ago. Nobody can maintain that the procedures followed in combating scarlet fever or measles are more effective than those which were used then. It is true that the cause of diphtheria is known and that there has been an intelligent and well directed fight made against it. But the decline began before this knowledge appeared. The means of prevention of scarlet fever and measles and whooping cough and various other contagious diseases are as difficult today as they ever were and there are no more vigorous measures taken against them now than formerly.

The epidemic diseases are disappearing, probably not so much because of the fight that is made directly against them, as on account of indirect influences that bear on them. It is impossible to state with scientific accuracy what all of these are or exactly how they operate, but it is possible that they have to do with the higher standards of living which prevail.

Disease is an ally of ignorance, dirt and disorder, and it everywhere tends to disappear on the improvement of knowledge and of social conditions. Standards of personal, domestic and municipal living are ever advancing and sweeping away the opportunities that formerly existed for the spread of infection.

Glancing over the range of common infections, it appears that, aside from smallpox, the kinds of disease that have proved most amenable to direct control are of the enteric type. The part of the world with which we are familiar has seen an immense reduction in the prevalence of these diseases. Devastating epidemics, formerly a constant menace, rarely occur now. Typhoid, diarrhea and dysentery have yielded their greatest terrors to the fight that has been made against them.

It is in the management of the respiratory infections, which terminate so often in pneumonia, that the least progress has been made. This group constitutes the leading cause of death in most civilized countries.

When the data representing the death rates from pneumonia in our cities and states from year to year are plotted, the curve forms a very different figure from the curve of any other infection. First, it lacks uniformity to a marked degree. Second, it is always high; it is about ten times as high as the curves of the exanthems. Third, it is, as a whole, not declining. These are criteria of epidemicity: fluctuating high and not receding rates. Pneumonia is unquestionably an epidemic disease which is manifesting a characteristic epidemic behavior. It is not under control and up to the present no way has been discovered to control it. These facts ought to be recognized at once. We shall see them clearly in a few years. It is our nearness to the conditions that causes us to be so indifferent to them.

THE THREE GREAT FIELDS OF EFFORT

Passing to a consideration of the ways in which disease of different types has been combated, we note that there have been three general fields of effort:

1. *Sanitation.*—By sanitation is here meant systematic health work of the type that generally requires a plant and a force of men to maintain it. Examples are works for the procurement of wholesome drinking water, the collection and disposal of liquid sewage and the gathering and final disposition of kitchen waste, ashes and other discarded material.

Sanitary works possess a number of advantages as compared with other measures for the prevention of disease. First, they have a wholesale application. A water supply that is made pure is wholesome for every person who has occasion to drink it. Although there is a considerable investment of capital in these enterprises, the maintenance charges are not excessive and the results are satisfactory. Yielding to works of sanitation are not only typhoid, dysentery and other diarrheal diseases, but some other forms of sickness that cannot conceivably be conveyed by drinking water. This phenomenon has been described in papers that are so easily accessible as to need no repetition here.

It is impossible to pass this point without suggesting that the introduction of any measure that materially contributes to the cleanness, convenience and order of a community helps to eliminate disease, even though its exact manner of doing so may not be apparent. Simple cleanness is one of the most healthful as well as one of the most educative measures known. Contributing, therefore, to the efficacy of existing measures for the prevention of disease in a community must be included such betterments as good street pavements, adequate lighting systems, suitable police regulations and agreeable parks.

Among the disadvantages of sanitary works is the fact that they are not available for communities of small size. A town must be rather large and compactly built before it can afford to have its houses served with a common water supply, a common sewerage system and a common scheme for the collection and disposition of ashes and garbage. Up to a certain point the relative cost is in inverse proportion to the size of the place.

2. *Administration, or Board of Health, Work.*—The scope covered by administrative action is large. It is essentially twofold. The primary intention is to keep disease from entering a community. When this effort fails, the next purpose is to detect the presence of the infection and to take appropriate action to suppress it.

The essence of this kind of work lies in three procedures: (*a*) the collection of data which, when properly interpreted, point to the existence of conditions that need attention; (*b*) the investigation of conditions to which attention is drawn, and (*c*) the application of the detailed measures of suppression that are necessary.

Under the head of administration are to be considered such useful activities of boards of health as the collection of statistical facts in relation to population, sickness and death; the supervision of foods and drugs; the regulation of quarantine; the performance of vaccination and inoculation; the distribution of serums and the education of the public through bulletins, lectures, reports and other methods of publicity.

In controlling disease, boards of health have the advantage of a broad range of action and an authority

that is granted to few departments of government. The powers of boards of health are equal to those of the police, of which they are, in fact, a part. No lack of authority exists, therefore, for the enforcement of any measures that may be necessary.

The chief disadvantage of board of health work lies in the fact that to be effective it must be skilful. It seems difficult for the public to understand this fact. Of all the departments of a city or state, the board of health should be the most free from corrupt or incompetent management. Too often a board of health is looked on as a quasipolitical organization in which persons of less than first class ability are considered fit for even the highest offices.

Boards of health are often embarrassed by a multiplicity of duties that could as well be attended to by other departments of government. Some boards of health are actually loaded down with work of this kind. In view of the fact that boards of health have so much difficulty in securing proper support for the work that they really should attend to, they should confine their efforts as far as practicable to what is essential and within their province. By doing well the things that they must do they can accomplish far more for the public welfare than by attempting so much.

It must not be supposed that boards of health are everywhere of equal efficiency or have the same problems to deal with. Boards of health should everywhere combat disease, but they must do this in different ways in different places. There is a vast amount of difference between the duties of a rural health board in an out-of-the-way district and the work of a city board in a highly congested region. The object to be accomplished in conducting board of health work is to fit the effort to the local circumstances. To do this in the most direct and effective manner possible should be the aim.

The communicable diseases that are usually considered especially amenable to administrative control are the exanthems, malaria and the enteric diseases, and such respiratory affections as tuberculosis and diphtheria.

An important field for administrative health regulation, and one that has only recently been fully appreciated, lies in the prevention of disease connected with industrial occupations. These are of various types and are preventable, whether they are infectious or not, by the employment of the general principles of avoidance, detection and investigation and by application of special procedures suitable to the particular circumstances in which they occur.

3. *Personal Precautions.*—Theoretically, the scope of personal effort for the prevention of disease is very large; as now practiced it is limited. It might be regarded as a branch of administrative work appropriate to boards of health except that its proper development by the ordinary administrative agencies that exist is almost wholly neglected. It would seem better to handle this subject on a bigger, broader and better plan. A suggestion along this line will presently be offered.

Personal precautions are unique in the field of disease prevention in that they possess a double function and a double responsibility. This lies in the circumstance that many diseases cannot be prevented by the exercise of precautions solely on the part of the persons who are in danger of them. In many instances the person who constitutes the danger must himself take the steps that will protect others.

As now practiced, personal precautions are restricted and uncoordinated. Every one exercises certain precautions, consciously or unconsciously. It is instinctive to avoid things that smell bad, that look revolting and that suggest pain or discomfort in any form. Other precautions are a part of the elementary education which every person gets in the school of experience. The efficacy of all of these efforts suffers for want of direction. Things are constantly being done by most persons which expose them unnecessarily to disease, and aggravate their illness when attacked.

THE SPECIFIC MEASURES FOR COMBATING DISEASE

The specific measures that are employed for the prevention of disease may be grouped for consideration under the three heads of sanitation, board of health work and personal precautions which we have used in discussing the three great fields of preventive effort. The relative efficacy of each under its appropriate head is indicated by the order in which it is placed in the subjoined list:

SANITATION

1. Public water supplies, water purification and the conservancy of the sources from which drinking water is derived.
2. Sewerage and sewage disposal.
3. Land drainage for the elimination of stagnant water and mosquitoes.
4. Street cleaning and garbage and waste collection and disposition.

BOARD OF HEALTH WORK

1. Isolation of the infectious sick, including quarantine, and the maintenance of special hospitals for contagious diseases.
2. The collection of vital statistics.
3. The preparation and employment of vaccines and serums.
4. The supervision of food and dairy products.
5. The sanitary inspection of dwelling places, industrial works and recreation.
6. The regulation of plumbing.
7. The supervision of dangerous trades and occupations.

PERSONAL PRECAUTIONS

1. The avoidance of the presence of the infectious sick.
2. The proper disposal of bodily wastes.
3. Vaccination and inoculation.
4. Discrimination against obviously dangerous foods, drugs and beverages.
5. Avoidance of chill, excessive fatigue and other conditions believed to predispose to, or aggravate, disease.
6. Cleanness.

When all these procedures are examined critically, we are startled by the fact that so few of them seem indispensable. Of the seventen specifications there is hardly one which could not be dispensed with, in any city or town, without the least danger of precipitating an epidemic. Many could be omitted indefinitely without producing any visible effect on the death rate.

This leads us to perceive that in cities the effectiveness of measures for the prevention of disease depends not on one thing, or a few things, but on many things. The comparatively low death rates of urban as compared with rural communities is largely the result of circumstances that directly and indirectly make it difficult for infectious matter to pass from person to person.

When we come to consider our seventeen specifications in relation to rural conditions we are likely to be still further surprised. We find that most of them are not applied. There are millions of people living in rural communities in America to whom all these procedures are unknown. Surprising as it may seem, they

know not sanitation or board of health work or personal precautions nor any of the technical procedures included under these heads. With them infectious diseases run a natural and unrestricted course. It may or may not be due to this fact that, in spite of the crowding, there is less infectious disease of some kinds in the city than there is in the rural districts.

It is worth while to look over the mortality statistics issued by the Bureau of the Census to see what the death rates are in the city and in the rural districts of the United States. About 70 per cent. of the population of this nation is represented in the returns; for the rest the figures are too inaccurate to warrant the government in publishing them. The latest data relate to the year 1916.

For some time the general death rate from all causes has been slightly higher in the cities than in the rural districts. The rate for the cities has varied from about 14.5 to about 15 per thousand population. The rural rate has ranged from 14.0 to 14.6.

Taking ten of the most common infections for comparison, we find that typhoid, influenza and whooping cough are more prevalent in the country than in the city and that pneumonia, tuberculosis, diphtheria, scarlet fever and measles are more common in the city than in the country.

The measles and scarlet fever that have occurred in the American army camps in the war have been explained on the ground that a large proportion of the men were from the country districts and had never had those diseases so that they were consequently susceptible to them. In passing it is rather curious to note that whooping cough, which ordinarily causes as high a death rate as measles or scarlet fever, and is often associated in point of time and place with those diseases, did not gain footing in the army. The age of the men seems to have protected them against it.

It must, therefore, be confessed that the efficacy of the best preventive measures is not great. Excluding water and sewerage works, the collection of statistics, the use of vaccines and serums, and such personal precautions as the proper disposal of bodily wastes and the isolation of patients ill of contagious diseases, there are no technical procedures that are known to have much specific value in preventing disease in civil life. It is curious to see how useless many of them are. It is still more curious to see how we cling to measures whose uselessness is perfectly apparent.

II. LESSONS TAUGHT BY THE WAR AS TO THE CONTROL OF DISEASE

Curiosity will naturally be felt as to the lessons taught by the war. In some quarters it is supposed that the experience that the mobilization of our army has offered has thrown much new light on the possibilities of controlling disease. This is not the fact. The light that this experience has thrown has not so much resolved new facts as it has made some old facts more plain. The war has proved most useful as a teacher of the fundamental principles of disease control.

It has shown more clearly than ever that it is persons and not things that are to be feared; that danger lies in short, direct and often obvious channels of infection rather than in long, roundabout and mysterious ones.

The importance of early and accurate diagnoses for the purpose of detecting the sources of the infective virus has received much attention. The war has demonstrated the need of searching out these sources rather than waiting for them to come to light later on. Formerly, in civil life, if a child was sick it was kept at home, more or less separated from its fellows, until its disease unmistakably manifested itself. In the army the men, whether apparently sick or well, were stripped and inspected periodically for the earliest possible evidence of infection. If they had knowingly been exposed to certain diseases and did not acknowledge it, they were subjected to court martial. By this procedure, many cases were detected in their incipiency and others of a mild character that would have escaped detection through their whole course were discovered. The prevention of infection thus accomplished was probably considerable.

The value of isolation was abundantly proved. This, of course, is the most perfect means of keeping disease from spreading that has ever been invented. It is the basis of a great variety of practical procedures such as quarantine. The use of masks and cubicles afford applications of the same principle. The difficulty with isolation always has been in making it effective without too greatly interfering with the person's normal activities. Nowhere have better opportunities to observe the advantages and disadvantages of isolation been afforded than in this war.

Nothing new of importance has come to light in regard to disinfection as applied to the environment. Disinfection, except in special circumstances, had been practically given up in the army before America went into the war, and nothing that has been found out since has led to a return of this old-fashioned procedure. It is to be understood, of course, that the disinfection of water supplies does not come within the scope of this remark. Oiling of floors to keep down dust and the wiping of walls, the airing and sunning of bedding and similar measures are not disinfection, as that term is ordinarily employed.

Great emphasis has rightly been placed on indirect measures of prevention. Such simple and well tried measures as ventilation and cleanliness were among the most valuable steps taken to prevent disease in the American army. The American soldier stood for cleanness. It is probably not too much to say that an army was never mobilized in more clean and orderly camps and never took the field with higher standards of personal cleanness than did the American troops in this war.

The war has demonstrated the great value that attaches to focused attacks on disease. This was illustrated in two entirely different groups of infections, the typhoid group and the venereal group. The lines of attack on typhoid were sanitation and preventive inoculation. The result was that typhoid, notoriously a disease of camps, was practically unknown in the American cantonments where these procedures were carried out. Every city and community should learn the lesson that this experience teaches. In seeking to eliminate typhoid fever, the last of the filth diseases, sanitation, inoculation and personal precautions should all be insisted on.

Nothing that the army did was more profitable than its efforts to teach the soldier how to take care of himself. The war taught no greater lesson in any direction. It was found that the men could learn and did learn. The increasing resistance of the individual was not simply the result of a hardening process. It was partly

the result of the shrewd application of a thousand small precautions that the experienced soldier knows.

We have spoken of the useful lessons that the war has taught. Let us look on the failures. The war has shown the hopelessness of efforts conducted along ordinary lines in the fight against respiratory infections. Little was done successfully in handling this group of diseases in the camps. A great lesson has been learned as to what it is useless to do. The war has taught us the need of attacking this subject in a manner different from anything heretofore undertaken —in a manner commensurate with its vast importance. It is time civilization stopped temporizing with the respiratory infections and undertook to put their management on a satisfactory basis.

The army has done a great work in combating epidemic diseases even if this work has not always been as successful as idealists would have had it. Briefly, it has taught that the time to study the management of infections is before the pressing necessity for this knowledge occurs. It has taught that disease must be looked for and not waited for; that the existence of infection is usually proof of neglect in some direction or other; that disease is really a reflection on common sense; that responsibility for it is not only a matter for communities to give attention to, but it is for the individual person to learn about and to avoid. In teaching personal responsibility, ground has been prepared for substantial improvement throughout the whole range of preventive effort. It is a part of the large significance which attaches to this subject that the lessons of the army are not only to be useful to armies in the future, but rightly they are the property of, and will be appropriated by, the world in times of peace.

THE GREATEST NEED IN HEALTH WORK

There is a great field, quite uncultivated as yet, for the competent instruction of the public in measures for the prevention of disease. Everybody should know how to do his part in avoiding infection. Infectious diseases do not monopolize the list; other forms of illness that are within the range of personal control are comprised in the category. When illness is disposed of, the promotion of an ever greater share of health affords a goal toward which every one should be taught to strive intelligently.

How to live and work and enjoy the greatest share of health should be taken out of the realm of uninformed guesswork where now it exists and set before the public on a substantial basis of scientific fact and authoritative opinion. This cannot be done at once. It cannot be done with the agencies or resources now available. There is much to be learned in respect to the laws of health and collective and individual precautions. The course to pursue is clear. There should be study, enunciation, and propaganda of sound principles.

Who is to teach this doctrine and put disease control on a sound basis of efficiency? The national government can help, if it is properly equipped and can secure the necessary support; schools of hygiene and the insurance companies can help; and great associations like the American Medical Association; and humanitarian foundations; and industrial physicians; and individual persons. But what is needed above all is leadership. This should come from competent professors in our medical schools and universities. The university should be the fountain head of knowledge. From here, as from a focus, competent instruction should radiate.

Reviewing the whole subject of the efficacy of existing measures for the prevention of disease, we may say, without fear of successful contradiction, that the respiratory infections which terminate in pneumonia are the ones that need most attention, and that need and opportunity both point to well instructed, individual effort as the means most likely to prove effective against them.

There should be a well organized, nation-wide effort to develop the field of personal precautions. There should be a campaign to teach men and women and children what they should do to protect themselves and their neighbors against infection. The interest in personal precautions that has been aroused by the campaign against venereal disease has well prepared the public to take up further health instruction.

Responsibility for the teaching that is required belongs primarily to our professional educators. The administrative authorities in our educational institutions whose business it is to select and support capable teachers should see to it that well trained and experienced persons are placed where their efforts will count. Every university and medical school in the United States should have a chair of hygiene.

A CLINICAL STUDY ON THE USE OF CALOMEL INUNCTIONS*

H. N. COLE, M.D.
AND
SIDNEY LITTMAN, M.D.
CLEVELAND

Since the earliest times, mercury inunction has been used for the treatment of syphilis. The drug, however, has always been employed in the form of an ointment of the metallic mercury. Recently Wile and Elliott[1] and Schamberg, Kolmer, Raiziss and Gavron[2] have suggested the use of an ointment made of calomel; this, for several reasons: The blue ointment is very uncleanly; it leads to discovery, and it frequently sets up an irritation of the skin. As calomel is more cleanly, and as the latter four authors felt that it is fully as well absorbed through the skin as the ordinary blue ointment, they suggested that it be used for inunction purposes in a formula consisting of:

	Gm.	
Hydrargyri chloridi mitis.....	3	gr. xlv
Lanolini	1	gr. xv
Adipis benzoinati	2	gr. xxx

The arguments of these writers seemed convincing, and we commenced using calomel inunctions, especially in private practice, in the spring of 1917. Since then the use of the calomel rubs has become so extensive that a manufacturing drug house has brought out an ointment of calomel which is a little more pleasant in form than the ordinary preparation, though probably no more efficient.

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* From the Department of Dermatology and Syphilis of the Western Reserve University School of Medicine and of the Cleveland City Hospital.

1. Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, J. A. M. A. 68: 1024 (April 7) 1917.

2. Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and Gavron, J. L.: Experimental Studies of the Mode of Absorption of Mercury When Applied by Inunction, J. A. M. A. 70: 142 (Jan. 19) 1918.

It was only after we had used this for some time that we began to feel more and more that it was not doing what was required of it. In the first place, we noticed, as was later called to our attention by Dr. Torald Sollmann of the Pharmacology Department of the Western Reserve University, that the patients did not get salivated. Moreover, it seemed that many times the patients did not react to treatment as they had formerly, when we were using inunctions of blue ointment instead of calomel, or when using injections of mercury. Therefore, in order to test out the efficacy of the inunction of calomel thoroughly, we commenced a series of experiments, using the fresh, clinical syphilis in our wards in the venereal disease department of the Cleveland City Hospital. We shall report the results of tests carried out in the past year or so in fifty-four cases. This investigation was undertaken at the suggestion of the Therapeutic Research Committee of the Council on Pharmacy and Chemistry of the American Medical Association.

Before describing these individual cases, we would say that we have tried to be as unprejudiced as is possible. The cases have been carefully followed; routine Wassermann tests on the blood, *Spirochaeta pallida* examinations and spinal fluid examinations were made in every instance. Moreover, in using the ointments, the patients have always been under the observation of an orderly or of a nurse to see that the inunction was carried out through a space of at least thirty minutes for six nights in each week, with a hot bath on the seventh night, and without other medication. Each patient has used an ordinary potassium chlorate mouth wash, but otherwise the run of teeth has been simply that of the teeth that one finds in any free hospital practice, which is to say, usually very poor.

In nearly all cases we used the 50 per cent. calomel ointment described above and made up by the hospital pharmacist. In the few cases which are noted in the clinical histories we employed a proprietary calomel preparation.

It has often been difficult to keep the patient under the calomel rubs for as long a time as we would desire, especially if the patient did not seem to improve in his own estimation. Again, we have found that frequently the patients would get together and talk over the therapy and advise each other as to their estimation of the therapy being used. To overcome this, and to make the experiments still more objective, we finally gave the patients saline injections into the arm during the course of the calomel rubs, so that they would not know that they were not receiving arsphenamin injections. In this manner we did our best to carry on the inunction treatment as long as possible, with practically every patient.

REPORT OF CASES

Case 1.—G. M., a woman, aged 19, had marked mucous patches on the tonsil and the pillar, condylomas of the vulva and anus and a mixed macular papulosquamous eruption. After thirty-two rubs, the patches were still present on the tonsils, though the skin showed some improvement. Rapid improvement followed the use of arsphenamin at this time.

Case 2.—A. A., a woman, aged 25, had marked condyloma of the anus and a generalized macular eruption. There was no change after eighteen rubs, and the patient demanded arsphenamin.

Case 3.—G. H., a man, aged 40, had marked patches on the tonsils, an annular syphilid on the forehead and extensive condylomas. There was no change after eighteen rubs, and because of the patient's insistence he was given treatment with arsphenamin, especially as the spinal fluid cell count had increased from 3 to 50. The patient had very bad pyorrhea, yet showed no gingivitis after thirty rubs.

Case 4.—E. F., a man, aged 28, had mucous patches on the left pillar and a generalized macular eruption. After eighteen rubs the patches were still present on the pillar, and there was no change in the eruption. Rapid improvement followed treatment with arsphenamin.

Case 5.—G. L., a woman, aged 21, complaining of headache and rheumatism, had a spinal fluid cell count of 25 and patches on the right soft palate. After twenty-four rubs the patches were much worse in the throat, and the patient was given arsphenamin therapy. Rapid improvement followed.

Case 6.—W. G., a man, aged 31, had a "veneer" chancre the size of a dime, of three weeks' duration, on the foreskin. During the course of twenty-two rubs, a secondary eruption developed, and large patches appeared on the left tonsil. Rapid improvement followed treatment with arsphenamin.

Case 7.—N. C., a man, aged 27, had a follicular syphilid. After twenty rubs, patches appeared on the left tonsil. He rapidly improved after treatment with arsphenamin.

Case 8.—N. W., a woman, aged 20, colored, had an extensive annular syphilid over the entire body. The condition became worse after eighteen rubs, and a deep, syphilitic ulcer began on the right tonsil after twenty rubs. Rapid improvement resulted from treatment with arsphenamin. The rubs were continued up to forty with no evidence of stomatitis or gingivitis.

Case 9.—J. S., a man, aged 28, had a symmetrical papulosquamous syphilid. There was no change after thirty-one rubs. A rapid improvement followed treatment with arsphenamin.

Case 10.—D. A., a man, aged 45, had a large gumma in the right inguinal region. A history of syphilis was denied. The spinal fluid count was 108 cells. After thirty rubs the gummatous mass showed no change, but the spinal fluid count dropped to 35 cells. We continued the calomel rubs to forty-three with no stomatitis or gingivitis. The gumma healed quickly on one injection of arsphenamin, showing improvement almost within twenty-four hours.

Case 11.—E. R., a woman, aged 52, had papulocrustaceous and serpiginous lesions on the right arm. They all disappeared after twenty rubs with calomel. She received thirty rubs with no effect on the teeth.

Case 12.—E. B., a man, aged 18, had a papulosquamous syphilid and areas of lichen syphiliticus. After twenty-five rubs, the eruption on the body was fairly well cleared up, but patches in the throat and on the lips were much more severe. Rapid improvement followed treatment with arsphenamin.

Case 13.—J. B., a man, aged 29, had marked patches on the tonsils, and macular syphilis. After nineteen rubs the patches entirely covered the tonsils, though the skin was clear. There was a rapid improvement under arsphenamin treatment. No stomatitis was present after twenty-three rubs.

Case 14.—A. K., a girl, aged 16, had a chancre on the upper lip and a macular eruption and patches in the throat. There was no change after twelve rubs, and the patient demanded different treatment.

Case 15.—J. N., a woman, aged 20, had condylomas and also patches on the left anterior pillar, uvula and soft palate. There was no change after twelve rubs, when the patient escaped from the hospital.

Case 16.—W. E., a girl, aged 16, had condylomas of the vulva and patches on the left tonsil. After twenty-one rubs the tonsils were still covered with patches, when the patient escaped from the hospital.

Case 17.—J. H., a man, aged 25, had patches in the mouth and the throat, condylomas of the anus, and fissures at the corners of the mouth. After nineteen rubs the oral fissures became condylomatous, with no evidence of gingivitis. There was a rapid improvement after arsphenamin treatment.

Case 18.—T. S., a man, aged 28, had mucous patches on both tonsils, the soft palate, and inside of the left cheek; and a faint, macular syphilis. After twenty-four rubs the

patches were worse, though there was no gingivitis in the mouth. The patient complained severely of rheumatic pains, and of the joints. There was a rapid improvement under treatment with arsphenamin.

CASE 19.—C. B., a man, aged 25, had a faint macular eruption and primary lesion in the balanopreputial sulcus. After eighteen rubs the primary lesion showed no change, and the patient had very severe rheumatic pains. The eruption became more marked. There followed a rapid improvement under arsphenamin treatment, with the teeth showing no gingivitis after twenty-five rubs.

CASE 20.—J. S., a man, aged 42, had a large ulcerocrustaceous syphilid covering the entire abdominal wall. There was a moderate improvement after forty-one rubs, with a miraculous change within forty-eight hours after arsphenamin was given. The teeth showed no gingivitis.

CASE 21.—W. W., a man, aged 21, colored, had patches on both tonsils and an annular syphilid on the neck, right elbow and buttock. After thirty rubs the lesions in the throat showed no change, and several circinate lesions had appeared on the right elbow. The patient escaped from the hospital at this point.

CASE 22.—A. W., a woman, aged 29, colored, had an annular syphilid of the face and lips, and around the nose. After eight rubs she developed a marked edema of the skin, followed by desquamation and tenderness. A faint trace of albumin and a few casts appeared in the urine. The condition was diagnosed as calomel dermatitis, and it all cleared up quickly after the calomel rubs were stopped.

CASE 23.—C. S., a woman, aged 24, had patches on the lower lip and lesions on the labia majora. After twenty-six rubs papulosquamous lesions, syphilitic in character, appeared on the arms and neck. There was no change in the patches. Instantaneous results followed the use of arsphenamin.

CASE 24.—R. H., a man, aged 28, had a macular syphilid on the chest, abdomen and back. After twelve rubs the macular eruption was gone, and the mucous membranes cleared. The patient felt fine after fourteen rubs. After thirty-two rubs an extensive mucous patch began to develop on the right posterior pillar. There was no evidence of gingivitis. The spinal fluid count, on the patient's admission, was 43 cells. After thirty-two rubs there were 38 cells. Bloody fluid was found after the patient had received three injections of arsphenamin. He reacted immediately to treatment with arsphenamin and showed no evidence of hydrargyrism after forty-three rubs.

CASE 25.—J. A., a woman, aged 17, had condylomas of the vulva and anus, a faint, macular syphilid, and patches on both tonsils and pillars. After twenty-four rubs the condylomas were markedly improved, but the patches in the throat were much worse, though they had showed some improvement after twelve rubs. The patient was given arsphenamin, and results were rapid. She took thirty-six rubs, with no evidence of stomatitis.

CASE 26.—R. H., a woman, aged 18, had mucous patches on both tonsils; a flat, papular syphilid on the face, chin and neck, and a general macular eruption. After eighteen rubs the lesions had all disappeared. The patient developed marked stomatitis and gingivitis after twenty-one rubs. She was then given arsphenamin.

CASE 27.—H. P., a man, aged 28, had mucous patches on the lips, tongue, tonsils, pillars and uvula, and a faint macular eruption. After eighteen rubs the lesions on the lip and tonsils were practically gone, the skin showing a slight desquamation. The patient was then treated with arsphenamin.

CASE 28.—J. D., a man, aged 18, had mucous patches inside the upper lip and over the tonsils, pillars and uvula. After twenty-two rubs the patches on the left corner of the mouth had become almost condylomatous in character; those in the throat remained the same. There was a rapid improvement under treatment with arsphenamin. The patient took thirty-eight rubs, with no evidence of stomatitis or gingivitis.

CASE 29.—W. M., a man, aged 24, had maculopapular syphilis and condylomas along the sulcus and around the anus. After thirty-four rubs there was no change in the condition. It cleared up rapidly under treatment with arsphenamin. The patient took fifty-one rubs with no evidence of gingivitis or stomatitis.

CASE 30.—R. M., a man, aged 22, had phimosis with a palpable chancre of four weeks' duration. Under treatment with rubs, a papulosquamous syphilid appeared, and after twenty-three rubs the patient had severe patches in the throat and one on the upper lip. After thirty rubs he began to complain of loss of hearing, which was explained as an extension of the mucous patches and inflammation up the eustachian tubes. After thirty-six rubs the patient was given arsphenamin and rapid improvement followed. No evidence of stomatitis or gingivitis appeared after forty-two rubs.

CASE 31.—A. D., a woman, aged 33, had mucous patches on the tonsil along the edge of the tongue, flat, papular lesions over the labia and general papular syphilis. The patient immediately salivated after twelve rubs. Patches were still present in the mouth after eighteen rubs, though the lesions on the vulva were somewhat better. She was given arsphenamin at this time because of the teeth.

CASE 32.—J. C., a man, aged 32, had marked phimosis with condylomas in the sulcus back of the glans. Spirochetes were present in the lesions. The patient was much worse after fifteen rubs, and was given treatment with arsphenamin. The lesions showed a marked improvement twenty-four hours later.

CASE 33.—J. L., a woman, aged 26, had mucous patches on both tonsils, the pillars and uvula. After seventeen rubs the lesions in the throat were more extensive, and the patient was given arsphenamin. She took thirty-two of the rubs with no evidence of stomatitis or gingivitis.

CASE 34.—J. C., a man, aged 51, had macular syphilis. After ten rubs his eruption was fainter. After twenty rubs definite patches began to appear in both tonsils, and he was given arsphenamin. He had thirty rubs with no evidence of gingivitis. The spinal fluid count, on the patient's admission, was 11 cells. After twenty rubs, there were 22 cells in the spinal fluid.

CASE 35.—J. U., a man, aged 55, had extensive mucous patches on the right anterior pillar, on the shaft of the penis, and on the scrotum. Condylomas of the anus were present, and macular syphilis. After twenty-two rubs, the patches in the throat extended high up on the soft palate, and arsphenamin was ordered. Rapid improvement followed. The patient took thirty-six rubs with no evidence of stomatitis or gingivitis.

CASE 36.—J. R., a man, aged 29, had a macular eruption, extensive mucous patches on both tonsils and on the pillars, and large patches on the under surface of the right side of the tongue. After twenty-one rubs of the proprietary, the lesions on the tongue had become an ulcer, and the patient developed severe headache. He was given arsphenamin, and all symptoms cleared up rapidly. He received twenty-six rubs with no evidence of stomatitis or gingivitis. On the patient's admission, the spinal fluid cell count was 1. After twenty-one rubs, the fluid was bloody.

CASE 37.—J. J., a woman, aged 25, had a fine miliary syphilid. After twenty-four rubs, the rash was fading. After thirty-seven rubs, a follicular syphilid appeared on the face and forehead, and a definite mucous patch on the tonsil. The patient was given arsphenamin, and there was a rapid improvement. She took fifty rubs with no evidence of gingivitis or stomatitis. The spinal fluid cell count, on her admission, was 3. After thirty-seven rubs, there were 27 cells in the spinal fluid. The count dropped to 3 after four injections of arsphenamin. In this case the proprietary preparation was not used.

CASE 38.—L. G., a man, aged 45, had an extensive ulcerocrustaceous syphilid on both legs. After twenty-three rubs of the proprietary preparation, the lesions on the thigh had improved 50 per cent., and the patient had a slight gingivitis in conjunction with an old, extensive pyorrhea. At this time he developed gangrene on his leg. Operation was refused and the patient died.

CASE 39.—Peter H., a man, aged 26, had a generalized maculopapular eruption, with patches in the mouth and on the genitalia. After ten rubs with the calomel, the lesions on

the genitalia had disappeared, and the eruption was entirely gone after the patient had taken eighteen rubs. The tonsils were still large and swollen, however, and a new mucous patch appeared on the right tonsil. There was no salivation. The patient was given the diarsenol brand of arsphenamin.

Case 40.—M. S., a woman, aged 32, had a chancre of the lip, a generalized maculopapular and pustular eruption, iritis of the right eye, patches on the soft palate, and enlarged and reddened tonsils. After ten rubs, there was a slight fading of the eruption. After eighteen rubs, the eruption of the face was clearing up, and there was some fading of the eruption on the body. After thirty-five rubs of the proprietary, the patient developed some new lesions on the right side of the lower lip. There was no improvement in the eye condition until she was given arsphenamin and mercury injections.

Case 41.—M. P., a woman, aged 26, had a chancre of the lip and mucous patches inside of the left cheek and over the soft palate. After twelve rubs, the lesions cleared up. This patient was not observed further, but was given arsphenamin at once.

Case 42.—M. M., a woman, aged 32, had a primary lesion of the left labium majus, with marked edema of the parts, and headache and rheumatism. There was practically no reaction to thirty rubs with calomel ointment, but a rapid improvement under arsphenamin treatment.

Case 43.—C. G., a man, aged 28, had extensive patches in the mouth and over the scrotum. The spinal fluid count was 20 cells. After nineteen rubs, the lesions in the throat and over the scrotum were practically gone. The patient had a slight salivation. He was given the diarsenol brand of arsphenamin and discharged.

Case 44.—J. F., a man, aged 28, had a history of chancre seven months before. There were no physical signs of syphilis except headaches and a ++++ Wassermann reaction. After seven rubs with calomel, the patient was severely salivated.

Case 45.—J. P., a man, aged 22, had a lesion of the glans of two weeks' duration. Spirochetes were present in large numbers with dark field illumination. The lesion was unchanged after twenty-three rubs, and the patient was given arsphenamin.

Case 46.—Grace M., a woman, aged 21, had a maculopapular eruption and extensive patches in the mouth. After seventeen rubs the eruption had practically disappeared, but the mucous patches in the throat showed no change, and the patient complained of dizziness and severe headaches. She refused a lumbar puncture. Rubs of 50 per cent. unguentum hydrargyri were given and, after ten of them, all symptoms and lesions disappeared. She was then given arsphenamin and discharged.

Case 47.—R. C., a woman, aged 21, colored, had condylomas of the vulva and an annular syphilid of the face and neck. The lesions had practically cleared up after sixteen of the calomel inunctions, but, beginning with the twenty-third daily rub, some mucous patches appeared in the throat which lasted until she had had forty-one rubs. The patient then received the diarsenol brand of arsphenamin, and the patches cleared up rapidly. There was no salivation.

Case 48.—N. B., a woman, aged 23, had a diffuse maculopapular eruption which entirely disappeared after twenty-three rubs. After thirty-two of them, a heavy trace of albumin and casts appeared in the urine. The skin was entirely clear.

Case 49.—A. G., a woman, aged 24, had a generalized maculopapular eruption, and patches in the mouth. After twenty-three rubs, the mucous membranes and skin were clear, and the treatment was continued until thirty-two rubs had been given. There were no further symptoms.

Case 50.—L. W., a man, aged 28, had a lesion of the glans of two weeks' duration. There was no reaction to twenty-eight of the calomel inunctions. The lesion cleared up quickly under treatment with arsphenamin. A Wassermann reaction was ++++.

Case 51.—S. S., a man, aged 31, had a lesion of the glans and prepuce of three weeks' duration, occurring four weeks after intercourse. Spirochetes were present in large numbers. The patient took thirty-eight rubs of calomel with no change in the lesion. It cleared up immediately after the use of arsphenamin.

Case 52.—M. S., a man, aged 23, had a marked papulopustular syphilid on the head, face, neck, trunk and arms, and patches on the left tonsil. After thirteen rubs with calomel ointment, the patient demanded arsphenamin. All the lesions reacted quickly.

Case 53.—N. N., a man, aged 36, had a periurethral chancre of two weeks' duration, and spirochetes were present in large numbers. After ten rubs with 50 per cent. calomel ointment the patient showed no improvement and demanded arsphenamin. The lesion healed at once.

Case 54.—F. N., a man, aged 33, had a generalized maculopapular eruption, with a patch on the left tonsil and a mucous patch on the genitalia. There was no change after thirteen rubs with 50 per cent. calomel ointment, and the patient refused further therapy and was given arsphenamin.

ANALYSIS OF RESULTS

An analysis of the foregoing results shows several things: In the first place, we note among these fifty-four cases that nineteen times (35 per cent.) the lesions, especially those on the mucous membranes, became much worse; five times (9 per cent.) they grew worse; sixteen times (29.5 per cent.) there was no change; five times (9 per cent.) there was a slight improvement; three times (5 per cent.) they were quite markedly improved, and three times (5 per cent.) the patients' symptoms disappeared entirely. In other words, there is a great preponderance of instances in which the patients got much worse under therapy, and this despite the fact that over forty rubs to a patient were used eight times (15 per cent.), that twelve times (22 per cent.) between thirty and forty rubs were used, and that thirteen times (24 per cent.) between twenty and thirty were used.

We had hoped to keep all the patients under treatment by calomel inunctions until from forty to fifty rubs had been given. This was impossible, however, as we have explained, for many times the patients refused further therapy, and in many instances they kept getting so much worse that strenuous measures had to be used to check the course of the disease. It will be noted from the reports that there was practically never any improvement in primary lesions when inunctions were used.

It is interesting to note that in one of the cases, after six rubs, a generalized exfoliating dermatitis developed as a result of the calomel inunctions, with a complicating acute nephritis and edema of the entire skin. These lesions all disappeared rapidly after discontinuing the use of the drug.

The lack of salivation is in striking contrast to results after the use of unguentum hydrargyri. It is difficult, if the patient is using unguentum hydrargyri properly, to give him more than eighteen or twenty rubs without marked symptoms of gingivitis and salivation. But in our fifty-four cases in which calomel inunctions were used, this was present in only three (1.5 per cent.) cases. In one patient there was a slight salivation after eighteen inunctions. In another there was a moderate salivation after nineteen inunctions, and one patient with a bad pyorrhea had a marked salivation after seven inunctions. Salivation was entirely absent in twenty-nine patients (53.5 per cent.) who used from twenty to forty rubs. We wish to call attention particularly to this point, and we agree with Dr. Sollmann that this striking lack of sali-

vation after the use of calomel inunctions means a very low grade of mercury absorption.

We are quite sure that if any one will carefully follow a series of cases such as our own, checking them up carefully from day to day, he will come to the same conclusions. Calomel inunctions, though cleanly and pleasant for the patient, do not compare in efficacy with inunctions of unguentum hydrargyri.

CONCLUSIONS

Observations on a series of fifty-four patients treated intensively with calomel rubs show that:

1. Calomel inunctions are almost totally inefficient against primary and secondary syphilis.

2. Calomel inunctions very rarely produce salivation or gingivitis. This means poor absorption of the mercury and explains this clinical inefficiency.

3. Calomel rubs may occasionally produce a dermatitis.

These results have led us to abandon calomel inunctions, and we would strongly advise against their further use in the treatment of syphilis.

ABSTRACT OF DISCUSSION

DR. JAY FRANK SCHAMBERG, Philadelphia: I have been greatly interested in this valuable and practical contribution to the therapy of syphilis with particular reference to inunctions. It is obvious that the patients who received the calomel inunctions did not absorb enough mercury in the blood. There is no essential difference in the effect of different mercurial preparations. With the mercurials now in use it makes little difference whether an inorganic or an organic compound is used, the question is how much mercury reaches the blood stream. Gray oil has been used for years for intramuscular injections. The French preferred calomel. If syphilitic manifestations failed to yield to calomel injections, it was felt that no mercurial treatment would accomplish the result. Before the days of arsphenamin, calomel injections constituted the "dernier ressort." From the therapeutic failures narrated by Dr. Cole, it is evident that not sufficient calomel reached the blood. It is therefore pertinent to inquire the reason for this. A certain school of physicians in Europe has long held the belief that the effect of mercurial inunctions was largely due to volatilization of the mercury and absorption through the lungs. In order to determine the truth of this thesis, Drs. Kolmer, Raiziss and myself carried out a very thorough series of experiments on rabbits in a specially contrived box apparatus. We caused one series of rabbits to be rubbed, and another to breathe a mercury laden atmosphere. While some mercury was absorbed into the lungs, the evidence in favor of cutaneous absorption as the dominant channel of entrance was convincing. In this article we called attention to the fact that blue ointment was more volatile than calomel. In order to administer calomel ointment and blue ointment in parallel doses, a larger amount of the former would have to be used, inasmuch as calomel contains only 85 per cent. of mercury. Furthermore, the lesser volatility would also require a further increase of the calomel content as compared with an ointment of metallic mercury. Dr. Cole's conclusion as to the therapeutic superiority of mercurial ointment over calomel ointment appears to be thoroughly justified by his careful observations. In view of this and of the fact that his patients were not salivated by the calomel ointment, it is evident that not enough calomel reached the circulating lymph and blood stream. In view of the disadvantage of the dirty blue ointment as compared with the cleanly calomel ointment, it would be worth while trying calomel ointment in considerably larger dosage, say 60 grains of calomel to an inunction.

DR. JOSEPH ZEISLER, Chicago: I consider this paper of value because it will help to destroy a fad that has come into use, for I consider the use of calomel rubs nothing but a fad. The remarks of Dr. Schamberg might be misleading when it comes to the question of intramuscular injections. There, of course, we deal with an entirely different proposition. There is no question that intramuscular injections properly done are very valuable, but in the case of inunctions we deal with an entirely different proposition. The value of inunctions with blue ointment need not be discussed. That is a historical fact that amounts to absolute knowledge, but in the case of calomel inunctions the technical conditions are entirely different. I would remind you of the old calomel vaporizations, where efficiency on localized lesions was quite manifest, but in that case it was vaporized by heat. In the ordinary calomel inunction there is no chance for vaporization. While I have never used calomel rubs Dr. Cole's experience will only confirm my previous belief.

DR. HARRY G. IRVINE, Minneapolis: Dr. Cole's observations are very timely. Many of us hoped that this would give us something clean that could be used in place of the blue ointment. I should like to comment about one particular point, however. I think that every man who has treated a large amount of syphilis will remember back in the old days quite a large number of cases such as Dr. Cole mentioned. Many of his patients had mucous membrane lesions. In the old days, before arsphenamin came into use, there was great difficulty in clearing up these mucous membrane cases with any form of mercury. I would suggest that in order to come to a conclusion Dr. Cole should change to some other form of mercury rather than change to arsphenamin. It would have been very interesting if he had tried the blue ointment in some of these cases to see if there was any difference in the agents rather than change to the arsphenamin injections. This would have given us an idea of the relative values of the two preparations.

DR. RICHARD L. SUTTON, Kansas City, Mo.: We frequently experience considerable difficulty in clearing up lesions of the mucous membranes with mercury. With regard to the relative value of ointments, and particularly blue ointment and preparations containing calomel, I have had a good deal of experience with the mixtures recommended by Schamberg and his associates and suggested by Wise and Elliott, and I do not believe that Dr. Cole has run up his dosage high enough. Another point to bear in mind is that the application should be placed on a moist, warm surface, such as the soles of the feet or the axillae. By doing this, the vaporized mercury gets into the circulation almost as quickly as when administered hypodermically. I believe the amount of calomel ointment should be increased until the physiologic action is secured, even though four or five drams of the ointment are required each day.

DR. HENRY H. HAZEN, Washington, D. C.: I do not see why we should make such a furore about inunctions. In the dispensary cases none of the patients will rub in the mercury satisfactorily. In private practice, certainly among the men, no proportion of them can be trusted to rub in inunctions. The women will sometimes use them because they do not like to have injections. In a large percentage of cases in private practice and in all the dispensary cases we cannot trust to inunctions. The patients will not so do it, no matter what drug is used, as to get any real value out of it.

DR. HAROLD N. COLE, Cleveland: I wrote to Dr. Schamberg and received a letter suggesting that we use larger amounts and we had started that. We have used 4 gm. of calomel in the inunctions in quite a large number of cases where we are still continuing the experiments. One patient has had sixty rubs of 4 gm. each and another has had thirty-six rubs of 4 gm. each and they developed an acute syphilitic iritis within thirty-six hours. It was the most striking thing I ever saw in the way of an acute syphilitic iritis. In my experience any amount of the calomel is useless as an inunction. In a few cases there seemed to be a certain amount of absorption and that explained why they seemed to get better results. In two or three cases we carried them on to a certain point and then changed over to unguentum hydrargyri and then saw results within a very few days. I think there is no comparison whatever between calomel and mercury rubs.

FIELD EXPERIMENTS IN MALARIA CONTROL *

WICKLIFFE ROSE, LL.D.
General Director, International Health Board
NEW YORK

Malaria is recognized as one of the most serious of the disabling diseases of man. It is estimated that in India alone it causes on the average each year about 1,130,000 deaths and more than 100,000,000 cases of illness. The economic losses resulting from it are incalculable. The failure of the early Panama Canal project and the difficulties encountered in building the Madeira Railroad are only spectacular examples of what it is doing continuously and on an enormous scale to hinder industrial enterprise. On farming populations its burden falls with peculiar emphasis. Many of the richest agricultural lands in warm climates cannot be developed until the infection in these regions has been brought under control. The direct annual cost of the sickness and death that it produces in India alone is estimated at about $284,000,000; and this does not take into consideration the vastly greater losses due to the impaired productive power of labor.

More serious still are its effects in retarding the development of individuals and communities. Like hookworm, the malaria plasmodium is an anemia-producing parasite. It saps the life of its victims by destroying their blood. The disease is most prevalent among children under 15 years of age, and therefore preys on the vitality of the race during the important period of physical and mental growth. Its effects, moreover, are cumulative. They are handed on from one generation to the next, and become to the community an increasing handicap in all things that make for social development. And these results are widespread. Malaria in mild form is almost world-wide in distribution, and in its malignant form belts the globe in a broad zone including tropical and semitropical regions. Of the 1,600,000,000 inhabitants of the earth, more than half live in countries in which the infection is prevalent and constitutes a serious menace to life and health and working efficiency.

And these conditions prevail in spite of the fact that malaria is a controllable disease. It is twenty years since the discovery by Ross, confirmed and extended by the Italian scientists and others, definitely established the life cycle of the malaria parasite and thus gave us the facts on which to base an intelligent program of control. It is well understood, not only by scientists but also by intelligent laymen, that the spread of the infection may be prevented by mosquito control, by protecting people from being bitten by mosquitoes, or by destroying the parasite in the blood of the human carrier. It has been shown, moreover, by repeated demonstrations that by application of any one of these measures or of any combination of them the amount of malaria in a community may be reduced indefinitely. There are few diseases that present so many vulnerable points of attack and none perhaps the control of which may be made more definite or certain. Still the infection persists. And still we refer to it as the chief obstacle to the development of civilization in the tropics. Comparatively little has been done during these twenty years to bring into general operation the practical measures for which the scientific basis has been so well laid.

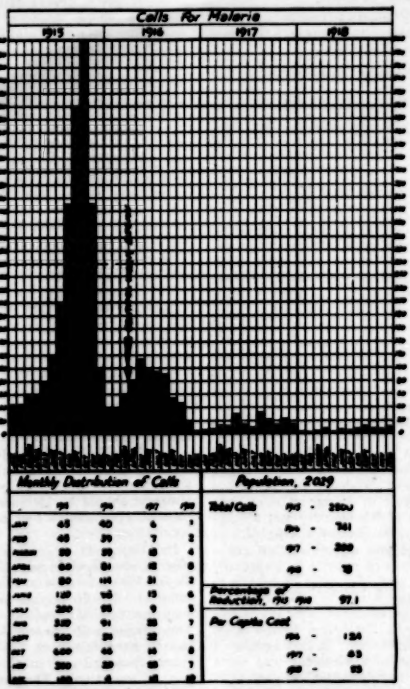

Fig. 2.—Record of malaria control by antimosquito measures, Crossett, Ark., 1916-1918.

THE ITEM OF COST AS A DISCOURAGING FACTOR

Nothing has done more to discourage the general application of antimalaria measures than the item of cost. Many of the early demonstrations that attracted wide attention were relatively expensive. Watson's brilliant results in the Federated Malay States, 1901 to 1905, were accomplished at a cost of $50 per acre treated at Klang and $250 per acre at Port Swettenham. More recently, large areas have been treated on rubber estates near Klang at a cost of from $25 to $30 per acre. The cost of operations in the Canal Zone—our most conspicuous demonstration in malaria control—was on the average for a period of five years about

* The field tests here reported under the head of malaria control by antimosquito measures, by screening, and by immunizing quinin were carried out in cooperation with the U. S. Public Health Service and the Arkansas Department of Health, Dr. H. A. Taylor having immediate charge of the antimosquito work and Dr. T. D. Haas of the screening and immunizing quinin tests. The experiment in malaria control by sterilizing the human carriers was conducted under the general supervision of the Mississippi Department of Health and under the scientific direction of Dr. C. C. Bass of Tulane Medical School. In the preparation of this paper, earlier reports, particularly the Fourth Annual Report of the International Health Board and Bulletin No. 88 of the U. S. Public Health Service, have been drawn on freely.

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of certain maps. It will appear in full in the author's reprints.

$365,000 annually. With an average population of about 100,000 for the area treated, this represents an annual per capita cost of $3.65. Controlling mosquitoes at from $25 to $30 per acre is a sound business investment on rubber estates that pay more than 100 per cent. in annual dividends and in a region in which the death rate among the coolies on unprotected estates runs as high at times as 176 per thousand. Such expenditures, however, are practical only under exceptional conditions. As a necessary part of digging the canal, the cost of sanitary operations on the Zone is negligible; but as a part of normal public health work such measures are feasible only in limited areas in which there is a dense population to support them.

More recent demonstrations indicate that malaria control may be brought within reach of the average community. It was with a view to contributing, if possible, to this end that the series of field experiments here to be reported were undertaken. In these experiments it has been assumed that if communities are to be induced to undertake the work they must be shown that the investment pays, and that it can be carried out within limits of expenditure that they can afford. It has been assumed also that no single measure can be made universally applicable; that the effective program in malaria control will comprehend the free employment of all means that are known to be serviceable, and will place emphasis at any particular time and place on that measure or combination of measures that under the given conditions will accomplish the result with least expenditure. It is assumed, furthermore, that the successful operation of a program of this character will presuppose, on the part of the person administering it, definite understanding of the conditions under which the work is to be done and of the possibilities and limitations of each of the measures that he is to employ. No attempt has been made, therefore, in these first experiments to put into operation a full program of malaria control, but rather to try out the possibilities of some of the more important elements that would enter into such a program. Thus far, four types of field experiments have been undertaken for the purpose of ascertaining as far as practicable the degree of efficiency under given conditions and the cost of malaria control by antimosquito measures, by the screening of houses, by administration of immunizing quinin and by direct attack on the parasite in the blood of the human carrier.

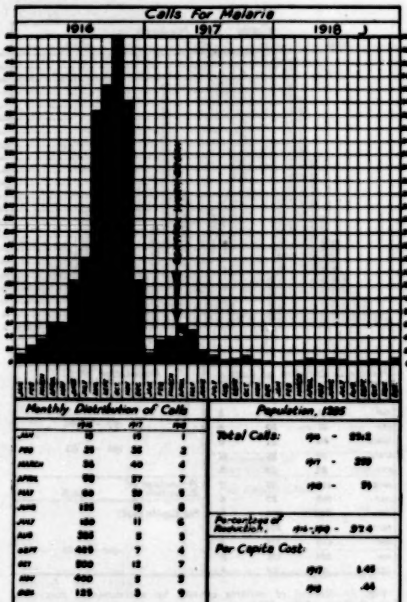

Fig. 4.—Record of malaria control by antimosquito measures, Hamburg, Ark., 1917-1918.

I. CONTROL BY ANTIMOSQUITO MEASURES

That malaria may be successfully controlled by antimosquito measures alone, and that this procedure is economically feasible for cities and large towns, is well understood. The early demonstrations at Ismailia in Egypt, a town of 10,000 inhabitants, where complete control was effected at a cost of $1 per capita initial expenditure and about 40 cents per capita for annual upkeep, and at Port Said, a city of 100,000 population, where satisfactory control was maintained at a cost of about 10 cents per capita, are examples of what has been done and is being repeated in many localities representing a great variety of conditions. In the experiments here reported, effort has been made to test the feasibility of malaria control in small communities by resort to such simple antimosquito measures as would fall within the limits of expenditure that such communities might well afford. The habits of the three mosquitoes—*A. quadrimaculatus* Say, *A. punctipennis* Say, and *A. cruzians* Wiedermann—which are responsible for the infection in these communities have been made the subject of constant study with a view to eliminating all unnecessary effort and thereby reducing cost.

Experiment at Crossett, 1916.—The first of these tests was undertaken at Crossett, a lumber town of 2,129 inhabitants, situated in Ashley County in southeastern Arkansas, about 12 miles north of the Louisiana line. Crossett lies at the edge of the so-called "uplands," in a level, low-lying region (elevation 165 feet), with sufficient undulation to provide reasonably good natural drainage. Climatic conditions and abundant breeding places favor the propagation of anopheles. Malaria in its severe form is widely prevalent as an endemic infection, and according to the estimate of local physicians is the cause of about 60 per cent. of all illness throughout the region. Within the town itself the malaria rate was high and was recognized by the lumber corporation and the people as a serious menace to health and working efficiency.

The initial step in the experiment was a survey of the community to determine the malaria incidence, to ascertain the species of mosquitoes responsible for the spread of the infection, and to locate the breeding places of these mosquitoes. Breeding places were exhibited on a community map (Fig. 1), and organized effort was centered on their destruction or control. The program of simple measures excluded all major

drainage. Borrow pits and shallow ponds were filled or drained; streams were cleared of undergrowth when necessary to let the sunlight in; their margins and beds were cleared of vegetation and obstructions; and they were trained to a narrow channel, thus providing an unobstructed off-flow. Artificial containers were removed from premises; water barrels on bridges were treated with niter cake. All remaining breeding places were regularly treated by removing vegetation, opening up shallow margins to give free access to small fish, and spraying once a week with road oil by means of automatic drips or a knapsack sprayer. All operations were under the supervision of a trained lay inspector. Care was exercised to eliminate all unnecessary effort and to secure, not the elimination of the last mosquito, but a reasonably high degree of control at a minimum cost.

The first conspicuous result apparent to every person living in the community was the practical elimination of the mosquito as a pest. The reduction in malaria, as shown by a parasite index taken in May, 1916, and again in December of the same year, was 72.33 per cent. The reduction in physicians' calls for malaria in 1916, as compared with the number of calls for the previous year (company's records), was 70.36 per cent. The per capita cost of the work—omitting overhead—was $1.24 (Fig. 2). During the year the Crossett Lumber Company had repeated these measures at two of its large logging camps with results that were convincing as to the soundness of the investment.

At the end of 1916 the community took over the work, and for two years has maintained it at its own expense and under its own direction. The measures have been continued under the supervision of a trained native lay inspector.

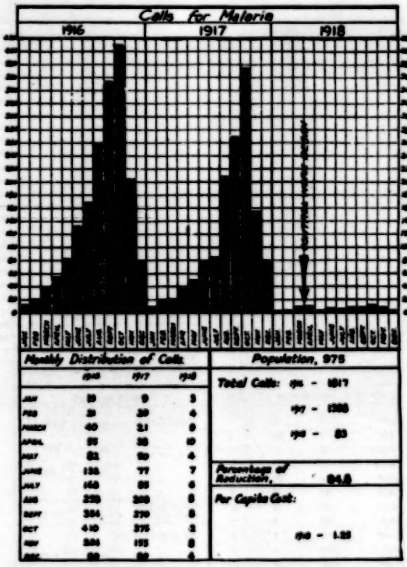

Fig. 9.—Record of malaria control by antimosquito measures, Lake Village, Ark., 1918.

TABLE 1.—PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, CROSSETT, ARK.

Population	2,029
CALLS*	
1915	2,500
1916	741
1917	200
1918	73
Reduction for the three years	97.1%
PER CAPITA COST	
1916 (omitting overhead)	$1.24
1917 (total cost)	.63
1918 (total cost)	.53

*Company's records.

Figure 2 exhibits in graphic form the results for the three years.

Results Confirmed at Hamburg (1917).—After the work at Crossett had been turned over to the community, operations were transferred to the neighboring town of Hamburg with a view to putting the practicability of antimosquito measures to test under somewhat more difficult conditions. Hamburg was not governed and financed by a wealthy corporation. It had no hospital. It depended for medical service on private practitioners who were deriving about 60 per cent. of their income from malaria. The town was less compact, and with only 1,285 inhabitants had a higher malaria rate and more abundant breeding places for mosquitoes (Fig. 3) than had Crossett.

The measures that had stood the test of the previous year at Crossett, with the introduction of certain economies that experience had suggested, were repeated here. Physicians' calls were reduced from 2,312 in 1916 to 259 in 1917, a reduction of 88.8 per cent. For the latter half of the year—July to December, inclusive—there were only forty-three calls for malaria in 1917, as compared with 1,995 calls for the same period the previous year, a reduction of 97.8 per cent. The per capita cost—omitting overhead expenses—was $1.45.[1]

At the end of the year again the community took over the work, assuming entire responsibility for its continued maintenance and direction. Figure 4 exhibits graphically the results for the two years. As a result of community effort during 1918, the total calls for malaria fell to fifty-nine, and the work was maintained at a per capita cost of 44 cents.

Demonstration in Four Communities (1918).—Taking as a basis the plan of operation that had been tried at Crossett and further developed and confirmed at Hamburg, effort was made during 1918 to carry out a demonstration on a somewhat larger scale and under a variety of conditions. For this purpose four small Arkansas towns were selected. They are rural towns ranging in population from 975 to 3,023. Lake Village, county seat of Chicot County, presented the problem of a level, low-lying area of buckshot soil with 2 miles of lake frontage and an extensive area of shallow swamp in the rear. Dermott, about 20 miles away, also in the flat lands of the Mississippi, presented the peculiarity of having abundant anopheles breeding places throughout the municipal area, owing chiefly to

1. The overhead expenses omitted comprise, in addition to general supervision, expenditures for outside surveys, for blood examinations, etc., which are desirable as affording useful information but are not properly a part of the cost of control operations in the given community. The costs as given include all capital expenditures and the complete local organization necessary to the conduct of the work.

the utter neglect of the most elementary principles of drainage in the grading of two railroads and the streets of the town. Monticello, county seat of Drew County,

TABLE 2.—PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, HAMBURG, ARK.

Population	1,285
CALLS	
1916	2,312
1917	259
1918	59
Reduction 1916-1918	97.4%
PER CAPITA COST	
1917 (omitting overhead)	$1.45
1918 (total upkeep)	.44

is a typical hill town for which a number of clear streams with adequate fall over a stiff clay soil furnished an abundant supply of anopheles. Bauxite, a rambling mining community of about 2,500 inhabitants, presented the difficulties of a large area to be treated, a heavy sand flow in the beds of its numerous small streams, and extensive hillside seepage areas offering ideal breeding conditions. Figures 5, 6, 7 and 8 exhibit for these communities the breeding places to be treated.

A preliminary survey of each community at different seasons during the previous year made it possible to omit from the working plans much that otherwise would have been waste effort. Each community was presented in advance with an estimate of its malaria prevalence, a chart exhibiting its breeding places, a working plan with budget, and an estimate of what might be expected as a result in degree of malaria control. The community in each case provided the funds required except for general supervision, and agreed to assume entire responsibility for the work after the first year.

The plan of operation followed at Crossett and Hamburg, with improvements suggested by experience

TABLE 3.—PHYSICIANS' CALLS FOR MALARIA AND THE PER CAPITA COSTS, LAKE VILLAGE, DERMOTT, MONTICELLO, AND BAUXITE, ARK.

	Lake Village	Dermott	Monticello	Bauxite
Population	975	2,760	3,023	2,500
Physicians' calls for malaria:				
1916	1,817	1,399	1,413	862
1917	1,388	1 248	1,274	729
1918	83	162	137	172
Per cent. reduction, 1917-18	94.8	87.8	89.8	78.4
Per capita cost, 1918	$1.25	$0.54	$0.46	$1.11

and adaptations to local conditions, was repeated in each of these towns. For the four communities combined, physicians' calls for malaria were reduced from 5,065 (the average for the two previous years) to 554, a reduction of 89.1 per cent. The per capita cost of the entire work, omitting general overhead expenses, was 74 cents. Results and costs by communities are graphically exhibited in Figures 9, 10, 11 and 12.

Comparison of cost of operations with results accomplished in these six towns tends to show that malaria control in such communities, considered merely as a business proposition, pays. At two dollars per physician's call, Crossett has been paying annually more than four and one-half times as much in doctors' bills alone for the privilege of having malaria as it expended in 1918 for the upkeep of the work that kept it practically free from malaria and from the mosquito as a pest. Hamburg's annual doctors' bill for malaria had been eight times the cost of protection in 1918. In the four new communities the annual payment for physicians' calls would cover even the relatively heavy cost of first year operations, almost one-and-a-half times over. And the doctors' bills are but an insignificant fraction of malaria's total cost to the community.

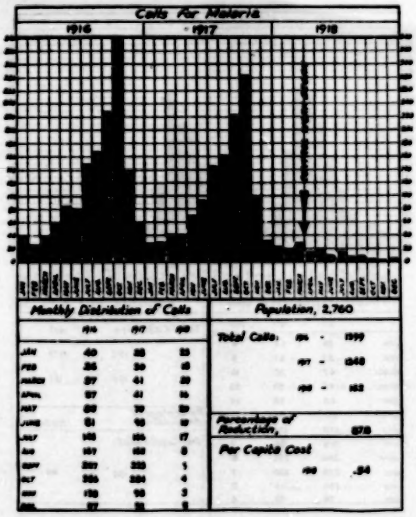

Fig. 10.—Record of malaria control by antimosquito measures, Dermott, Ark., 1918.

II. CONTROL BY SCREENING

For communities situated as those described above there seems to be little need of resort to other procedures than those directed against mosquitoes. The control of malaria in towns, however—even in small towns—does not reach the heart of the matter. Malaria is essentially a rural disease, bearing most heavily on the people and the industries of the farm. There are large rural areas, moreover, in which, in the light of our present knowledge, the control of mosquito breeding is not practicable. Malaria in these localities, if it is to be controlled at all during the pioneer period of settlement, must be attacked from another angle. It has been shown by demonstration that under conditions that make the cost of mosquito control prohibitive, it is still possible to reduce the malaria rate by the screening of houses, by the systematic administration of immunizing quinin, and by detecting the human carriers and destroying the parasites in their blood.

In order to test the efficiency and the cost of screening as a control measure, a field experiment was conducted in 1916 on a group of cotton plantations near Lake Village, Ark. The community, which lay along the shore of Chicot Lake, had an abundant supply of anopheles and a high malaria incidence. The houses on these plantations were typical negro cabins, many of them loosely constructed and therefore difficult to protect against entrance by mosquitoes. All selected

houses were screened with galvanized wire cloth, 16 mesh, the work being carefully done by carpenters and without cost to the tenants. The people were taught by house-to-house visits the importance of keeping the screens in good condition and the dangers of exposure to mosquitoes on the outside after dark. Each home was inspected at regular intervals throughout the season. No other measure was employed.

The estimate of result was based on parasite index. An index taken in May, 1916, when the work began, showed an infection of 11.97 per cent.; a second index taken in December of the same year showed an infection of 3.52 per cent., a reduction of 70.6 per cent. Unfortunately, the index for May, 1917, which would have afforded a more instructive comparison, is wanting.

On a visit during the season of the following year it was found that the screens were still in good repair and that the people—mainly typical plantation negroes—were convinced of their value. The average cost of screening for the community was $14.59 per house. Estimating the life of the screen at two years, the average annual cost would be $7.29. On this basis the annual per capita cost of the screening alone was $1.75.

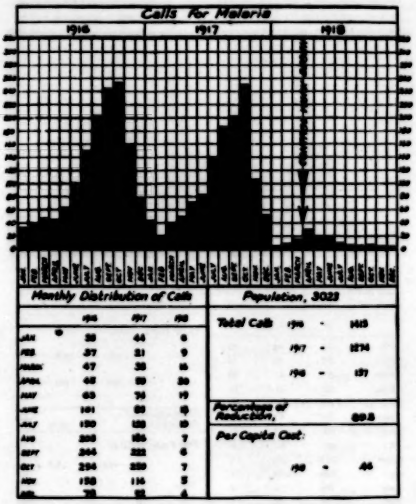

Fig. 11.—Record of malaria control by antimosquito measures, Monticello, Ark., 1918.

III. CONTROL BY IMMUNIZING QUININ

In another plantation community, immunizing quinin as a control measure was put to similar test. This second community lay along the bank of a sluggish bayou, from which it derived its supply of anopheles. Under the direct supervision of the physician in charge, quinin was administered to all persons in the community in doses of 5 grains morning and evening—making 10 grains a day—for two successive days each week. For children under 15 years of age the dosage was reckoned at 1 grain for each three years and was administered in the same way. A parasite index taken in May, 1916, at the beginning of the work, and again in December of the same year, showed a reduction of 64.45 per cent. Again the omission of the index for May, 1917, must be regretted. The per capita cost of the work, omitting the overhead expense, was 57 cents.

These tests in malaria control by screening and by the administration of immunizing quinin are to be regarded as preliminary and their results as suggestive only. Generalization may be attempted only when they have been carried out on a much larger scale under a variety of conditions and with a more reliable measure of results.

IV. CONTROL BY TREATING THE CARRIERS

Since all infected mosquitoes have derived their infection from the blood of infected persons, it is theoretically possible to prevent the infection of mosquitoes and thereby prevent the spread of malaria in a community by destroying the parasites in the blood of the human carrier. Robert Koch first suggested the possibility of controlling malaria by the treatment of carriers during a visit to Italy in 1898, and in 1900 he demonstrated his theory by a definite reduction of the malaria rate in a small community of 734 persons at Stephansort, German New Guinea. The measure has been rather widely employed in German colonies and with varying degrees of success. Malaria has been reduced, but in no community does the method seem to have been put to an adequate test and with sufficient attention to measure of results and to counting of costs.

Initial Experiment in Bolivar County, Miss. (1916-1917).—As a preliminary study, a two-year field experiment, in which more than 30,000 persons were registered, was conducted in Bolivar County, Miss., during 1916 and 1917. The large number of blood examinations confirmed with emphasis the importance of the malaria carrier. Persons who have had clinical attacks are likely to carry the parasites in the blood for months after the clinical symptoms have disappeared. The examinations revealed also that the usual doctor's treatment of malaria, although breaking the chill and sending the patient back to his work, does not, in most cases, sterilize his blood. The results of chill tonics, on which so many people depend, are still less satisfactory. A very large percentage of malaria patients treated by physicians, or by the use of chill tonics, continue for months, after apparent cure, to carry the parasites and to be therefore subject to relapse and a possible source of infection to others. These tests, furthermore, establish the fact that 10 grains of quinin a day for eight weeks sterilized the blood of about 90 per cent. of the carriers to whom it was administered.[2]

With this standard course of treatment established, effort was made during 1918 to carry out a test demonstration in malaria control by treating the carriers.

Test Demonstration in Sunflower County, Miss. (1918).—For purposes of the demonstration, a typical rural area was selected in Sunflower County, Miss. This area, like the delta region in the heart of which it

2. There is reason to believe that this result does not hold for all conditions. It seems to be much more difficult, for example, to sterilize the blood of carriers in certain tropical regions.

lies, is level, low-lying, and covered at frequent intervals with a net-and-patchwork of sluggish streams, bayous and swamps. Mosquito breeding is abundant throughout the season, and the cost of its control under present conditions is prohibitive. The area contains about 100 square miles and a population of about 9,000, about 1,000 living in the town of Ruleville and about 8,000 on cotton plantations under typical delta conditions. The blacks outnumber the whites by about four to one. Most of the negroes can read, but as compared with a white population living under similar conditions the grade of intelligence is relatively low. The dominant industry of the region is the growing of cotton, and the life of the community centers in and revolves about the cotton plantation. There are relatively few small farms operated by their owners, the prevailing type being a large plantation operated with negro tenant labor under the supervision of a resident manager.

The disabling disease of the region is malaria. At cotton cultivating and picking time, when labor is in greatest demand and when delay means direct money loss, malaria is most severe. It is estimated that from one third to three fourths of the people on these plantations have one or more attacks of malaria each year, and that 70 per cent. or more of all sickness disability in the community is due to this cause. On one plantation, for example, having a tenant population of about 600, the average annual doctor's bill for the last ten years has been approximately $4,000. Of this sum about $3,000, or $5 per capita, is attributed by the manager to malaria. The loss to the tenant and the landlord in crop returns is much larger. And since the landlord must look to the tenant's crop both for return on his capital investment in land and equipment and for reimbursement for his large current advances to his tenant families, he is most deeply concerned in any condition that impairs the health and efficiency of the workers on his plantation.

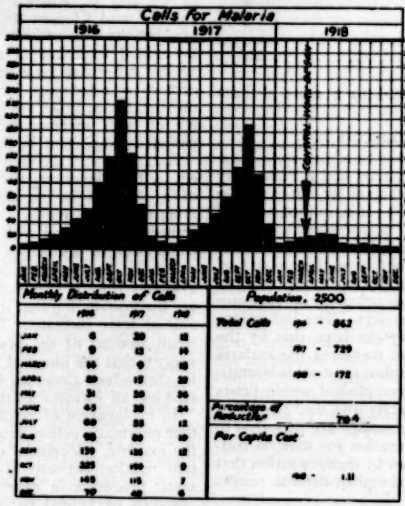

Fig. 12.—Record of malaria control by antimosquito measures, Bauxite, Ark., 1918.

The first step in the demonstration was to map the area, locating roads, streams and homes; to take a census of the population, and to make a survey involving a record of each person on the census roll. This survey showed that of the rural population 40 per cent. had had clinical malaria within twelve months, and that of the remaining 60 per cent. who had not had a clinical attack, 22 per cent. had the parasites in their blood. All persons giving a history of clinical malaria within twelve months and those who were found by blood examination to be carrying the parasites were given sterilizing treatment, namely, 10 grains a day for eight weeks. Effort was made by personal instruction and by repeated house-to-house visits to have the prescribed course of treatment followed to the end. Irregularities occurred and are under such conditions inevitable; but, in general, instructions were followed. In the rural area no other measures were employed.

In the town of Ruleville, malaria control was based in the main on antimosquito measures. Here inspection disclosed the fact that mosquito breeding, which was abundant, was due almost exclusively to running hydrants and leaking pipes supplied by flowing artesian wells. The problem was extremely simple. The enactment of an ordinance followed by the imposition of a number of fines resulted in the destruction of breeding places and the consequent extermination of mosquitoes in the town.

Results.—Unfortunately no reliable record of the number of physicians' calls within the area before the work began is available, and the second parasite index will not be taken until next season. The results of the test, so far as they may be estimated in advance of the final report, may be thus summarized:

1. There has been no transmission of malaria within the town of Ruleville during the year, and the town has been free from the mosquito as a pest.

2. The degree of malaria control resulting from the measures carried out in the rural area is estimated by the director in charge at approximately 80 per cent. This estimate is based on the record of malaria histories, intimate observation during the season, informal reports by tenants and plantation managers, and regular monthly reports submitted by physicians.

3. Physicians practicing within the area report a marked decline in malaria cases.

4. Plantation owners and managers operating within the area are of one accord in reporting an obvious decrease in malaria as compared with previous years. One manager, for example, operates a large plantation within the demonstration area and a smaller one outside the area. The plantation under control has a tenant population of about 600, the one not under control about 180. The doctor's bill for the year on the smaller plantation has been greater than on the large one. This difference he attributes altogether to the malaria control on the larger plantation.

5. These reports and estimates were checked by personal inspection on a recent house-to-house visit among tenant families on plantations, and families in a community of small landed proprietors. The record of the first ten families visited (Table 4) typifies the result.

Neighboring counties in Mississippi have asked that the work be extended to them and have indicated a willingness to provide the funds. The demonstration, however, is only begun. It is suggestive, but far from complete. No conclusion will be attempted until the test has been continued over a period of years within the same area, has been tried under a variety of conditions, and has been submitted to a more definite measure of results.

TABLE 4.—MALARIA CONTROL ON PLANTATIONS OF SUNFLOWER COUNTY, MISS., 1918: RECORD FOR FIRST TEN FAMILIES VISITED

Order of Visit	Number in Family	Positive Malaria History	Negative History but Parasites in Blood	Malaria This Year
1	12	10	..	3
2	6	4	..	0
3	4	0	1	0
4	2	0	0	0
5	8	0	2	0
6	7	1	5	0
7	4	3	..	0
8	9	9	..	0
9	1	1	..	1
10	5	4	..	0
Total	58	32	8	4

Percentage of Reduction 87.5

SUMMARY AND CONCLUSIONS

1. For the average town in our Southern states having a thousand or more inhabitants and a reasonably high infection rate, malaria control by antimosquito measures is economically feasible; it is, in fact, a sound business investment.

2. In heavily infected regions, in which the cost of mosquito control would be prohibitive, the amount of malaria may be greately reduced by resort to screening, to immunizing quinin, or to destroying the parasites in the blood of the human carriers. The indications would seem, in fact, to justify the hope that by the systematic application of these measures the malaria in a community may be held within reasonable bounds, and that this result may be accomplished within limits of cost that the average community may well afford.

3. The people in these communities are prepared to provide the funds by public taxation for malaria control when they have been shown by demonstration that the program proposed will accomplish definite results that justify the expenditure.

4. The results thus far accomplished would seem to justify continuing these field experiments until the principal procedures that have been found useful in controlling malaria have been pretty thoroughly tested separately and thus evaluated. It will then be possible to operate intelligently a combination program in which each control measure will be given its place and will receive varying emphasis from time to time according to the local conditions that have to be met. This freedom in the use of our tools will in turn contribute toward the object that we have in view, namely, the highest degree of malaria control consistent with a reasonably low per capita cost.

TABLE 5.—SUMMARY OF RESULTS OF MALARIA CONTROL DEMONSTRATION IN SUNFLOWER COUNTY, MISS., 1918

Population rural area	8,000
Estimated degree of control	80%
Per capita cost	$1.08
Per capita cost for Ruleville	$ .41

FACTORS INFLUENCING RECOVERY AND RESOLUTION IN LOBAR PNEUMONIA

WITH SPECIAL REFERENCE TO THE CHEMISTRY OF THE PNEUMONIC EXUDATE *

FREDERICK T. LORD, M.D.
BOSTON

Various factors may be operative in the recovery from lobar pneumonia and in the resolution of the fibrinous exudate:

I. PREVIOUS OBSERVATIONS WITH A BEARING ON RECOVERY AND RESOLUTION

Recovery from lobar pneumonia is at present thought to be due to the elaboration of protective substances during the course of the disease. Through the work of G. and F. Klemperer,[1] Neufeld and Haendel,[2] Dochez[3] and Clough[4] the blood serum from patients at about the time of or after the crisis has been shown by animal experiments to possess protective power against otherwise fatal doses of pneumococci. These protective substances in small amounts are usually present, but at times are not demonstrable at all. The use of both pneumococci and serum from the same patient is important in their recognition.

An advance in the study of the mechanism of recovery is the demonstration by Bull[5] of the importance of agglutinins in the disappearance of pneumococci from the blood, and by Cole[6] of soluble inhibiting substances in the blood with the property of neutralizing pneumococcus antibodies.

It is, of course, possible that the methods at present available for the demonstration of humoral immunity are inadequate and that it is a more potent factor than animal tests indicate. The inconstant presence and small amount of the protective substances, however, suggest that the humoral factors, while important, are, by themselves alone, an insufficient explanation of so striking an incident as the crisis in pneumonia.

In explanation of resolution, it has long been clear that enzymatic action must account for the solution of the exudate. Sörensen[7] called attention to the important relation between H-ion concentration and enzymatic processes in general. Dernby's[8] work on the autolysis of animal tissue has been of assistance in suggesting methods applicable to the investigation of enzymatic processes in the pneumonic exudate.

II. OTHER FACTORS INFLUENCING RECOVERY

The following data suggest that local biochemical changes as well as humoral factors may be of importance in recovery from pneumonia. These may be grouped under these headings:

1. *Acidosis in Pneumonia.*—Various observations have shown that in the metabolism in pneumonia a considerable amount of acid is produced. This is indicated by a diminished carbon dioxid content of

* Read before the Association of American Physicians, June 17, 1919.

1. Klemperer, G., and Klemperer, F.: Berl. klin. Wchnschr. 28: 833, 869, 1891.
2. Neufeld and Haendel: Ztschr. f. Immunitätsforsch. 3: 168, 1909; Arb. a. d. k. Gesdhtsamte 34: 166, 1910.
3. Dochez, A. R.: J. Exper. Med. 16: 665, 1912.
4. Clough, P. W.: Bull. Johns Hopkins Hosp. 24: 295, 1913.
5. Bull, C. G.: J. Exper. Med. 22: 457, 1915.
6. Cole, R. I.: J. Exper. Med. 26: 453 (Oct.) 1917.
7. Sörensen: Enzymstudien über die Messung und die Bedeutung der Wasserstoffionenkonsentration bei enzymatischen Prozessen, Biochem. Ztschr. 21: 131, 1909.
8. Dernby, K. G.: J. Biol. Chem. 35: 179 (Aug.) 1918.

the blood, an increased ammonia output in the urine, an increased titrable acidity, and an increased alkali tolerance. In his study of thirty cases of pneumonia, Palmer[9] found that in many, usually the more severe cases, the urine contained a large amount of an organic acid which is free at a H-ion concentration of 5.0.

2. *Partial Isolation of the Pneumonic Lung.*—The exudate fills the alveolar spaces and is separated from the general circulation by the limiting alveolar wall. Kline and Winternitz[10] have shown that the pneumonic lung in experimental pneumonia communicates imperfectly with the circulation. This partial isolation suggests that within the involved region biochemical changes may occur which are reflected only to a limited degree in the body as a whole. An increase in H-ion concentration of the exudate may thus occur without a change in H-ion concentration of the blood.

3. *Acid Death Point of the Pneumococcus.*—Experiments with the pneumococcus[11] indicate that it is susceptible to varying H-ion concentrations. The production of acid is the most important bactericidal factor in the short viability of the pneumococcus in glucose bouillon cultures. Such cultures, allowed to grow and die out, usually reach a final H-ion concentration of about 5.1. The exposure of living pneumococci to 5.1 or a higher H-ion concentration shows that the organism does not survive longer than a few hours in a H-ion concentration of about 5.1, and that it may live for at least many days at 7.4 to 6.8. In the intervening H-ion concentrations, between 6.8 and 5.1, the pneumococcus is killed with a rapidity which bears a direct relation to the H-ion concentration, that is, the greater the acidity, the more rapid the death. The following observations suggest that some other factor, also influenced by the degree of acidity, may be responsible for destruction of pneumococci:

4. *Dissolution of Pneumococci.*—As shown by Lord and Nye,[11] a critical degree of H-ion concentration has a bearing on dissolution of pneumococci. Cloudy suspensions of washed pneumococci in H-ion concentrations varying from 8.0 to 4.0 show, after incubation, disappearance of organisms apparently due to their dissolution in lower H-ion concentrations than about 5.0. This dissolution is most marked at about 5.0 to 6.0; some also takes place toward the more alkaline end of the scale. An enzyme set free from the bacteria themselves may be the explanation. Dissolution of pneumococci under the favoring influence of a change in H-ion concentration may be a factor in the disintegration of organisms observed in the pneumonic exudate in the more advanced stages.

5. *H-Ion Concentration of the Pneumonic Lung.*[12]—The H-ion concentration of the press juice from the pneumonic lung at necropsy in fatal cases is higher than that of other tissues of the body, and reaches a p_H of about 6.0. The pneumonic exudate in experimental Friedländer and pneumococcus pneumonia in dogs may likewise be more acid than the press juice of other organs and the blood. In one dog with experimental pneumococcus pneumonia killed on the third day, the H-ion concentration of one involved lobe, taken immediately from the body, was 6.0, and that of another 5.4. From the former, pneumococci were grown in pure culture, but from the latter no growth of pneumococci was obtained.

The pneumococcus can usually be cultivated from the pneumonic lung after death, even when the H-ion concentration is about 6.0. To judge from the observations on the acid death point of the pneumococcus, however, slightly higher H-ion concentrations than this, as in the dog's lung with a p_H of 5.4, would probably have resulted in death of the organisms.

These observations were made, using the colorimetric method after dialysis through a celloidin membrane. It is desirable that the H-ion concentration of the pneumonic lung and its influence on the pneumococcus in the tissue itself be determined during the course of pneumonia in the living subject by the electrometric method.

III. FACTORS INFLUENCING RESOLUTION

As has been shown elsewhere,[13] cellular material obtained from the pneumonic lung in the stage of gray or red-gray hepatization contains a proteolytic enzyme capable of digesting coagulated blood serum at an H-ion concentration of 7.3 to 6.7 inclusive and inactive in more acid concentrations. Such cellular material also contains a proteolytic, peptone-splitting enzyme operative at H-ion concentrations of 8.0 to 4.8 inclusive and most active at 6.3 or 5.2. A digestive action on coagulated blood serum probably indicates a similar action on fibrin, the split product of which is then acted on by a second enzyme and reduced to amino-acid. The products of protein digestion may thus be converted into a form in which they can be absorbed.

The finding of two enzymes in the pneumonic exudate, one digesting coagulated blood serum in weakly alkaline and weakly acid mediums and the other splitting peptone to amino-acid nitrogen with an optimum activity in still more acid mediums, may serve to suggest, independently of the previous observations, that the pneumonic exudate undergoes an increase in H-ion concentration, according to the principle Michaelis[14] established for enzymes in general, that the H-ion concentration of tissue fluid, containing specific enzymes, is the same as that at which the enzymes work best.

IV. LOCAL BIOCHEMICAL CHANGES AS AN EXPLANATION OF RECOVERY AND RESOLUTION

The findings suggest a theory in explanation of recovery from pneumonia in the course of which humoral immunity is assisted by local biochemical changes. Acidosis in pneumonia may be due to partial isolation of the pneumonic lung, permitting a local increase in H-ion concentration, the excess of acid formed in the exudate gaining entrance to the circulation. Dissolution of the pneumococcus may proceed at first slowly and later more rapidly as the local acidity increases. When the local H-ion concentration reaches the acid death point of the pneumococcus, crisis and recovery follow.

The findings also suggest an explanation of resolution in the course of which the fibrinous exudate is locally split to a form in which it may be readily and harmlessly absorbed. With the breaking down of the cellular exudate, an enzyme digesting protein (fibrin) in weakly alkaline and weakly acid mediums is liber-

9. Palmer, W. W.: J. Exper. Med. **20**: 495 (Oct.) 1917.
10. Kline, B. S., and Winternitz, M. C.: J. Exper. Med. **21**: 311, 1915.
11. Lord, F. T.: Tr. Am. Soc. for Clin. Investigation, 1916, p. 8; Bronchopulmonary Disease, J. A. M. A. **67**: 1981 (Dec. 30) 1916; Relation of Pneumococcus to Production of Acid in Fluid Culture Mediums and Reaction of Pneumonic Lung, ibid. **72**: 1364, 1919. Lord, F. T., and Nye, R. N.: J. Exper. Med. **30**: 389 (Oct.) 1919.
12. Lord (footnote 11).
13. Lord, F. T.: The Relation of Proteolytic Enzymes in the Pneumonic Lung to H-Ion Concentration, an Explanation of Resolution, J. Exper. Med. **30**: 379 (Oct.) 1919.
14. Michaelis: Die Wasserstoffionenkonzentration, Berlin, 1914, p. 86.

ated. As the acidity increases, the action of this enzyme ceases. An enzyme capable of splitting peptone to amino-acid nitrogen, also active during the proteolysis of the fibrin, is still further activated at an H-ion concentration of 6.3 or 5.2. The exudate may then be dissolved, and resolution takes place.

305 Beacon Street.

TECHNIC OF NERVE SUTURE AND NERVE GRAFTING*

CHARLES A. ELSBERG, M.D.
NEW YORK

From the beginning of a peripheral nerve operation to its end a very perfect technic is necessary. The freeing of the ends of a divided nerve and the excision

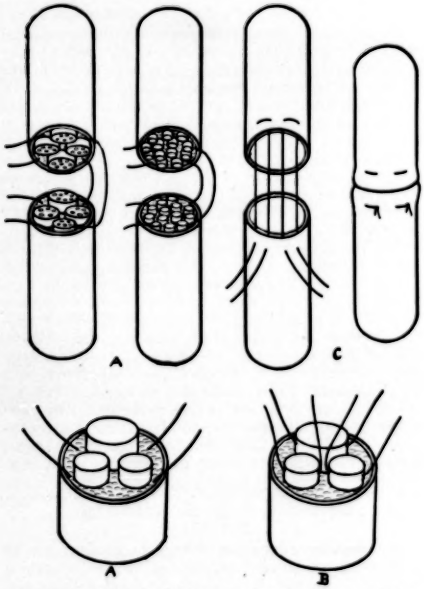

Fig. 1.—*A*, direction in which the perineurial sutures are passed; *B*, transfunicular suture which should never be used; *C*, epineurial mattress sutures. (Diagrammatic.)

of the surrounding scar tissue with the least injury to the delicate nerve structure, the perfect control of bleeding, the accurate sectioning of nerve bulbs until good nerve fibers are exposed, the proper approximation and suture of the nerve ends without tension—all these and many other details are of great importance. One minute fault in technic—whether it be the failure to obtain a dry wound, too rough handling of the nerve trunk, insufficient excision of scar tissue from the bulb or from around the nerve, improper application of the sutures, etc.—and the chances for a good nerve regeneration are much diminished, no matter how skilfully all other manipulations have been accomplished.

On account of lack of time and space, nothing will be said, in this paper, concerning the proper incisions for exposing injured nerve trunks—incisions so planned as to cause the minimum amount of injury to the muscles. Nor shall I touch on the manner in which nerves should be handled, the methods by which they are to be freed from the surrounding scar tissue—neurolysis—and the means by which the formation of adhesions between the nerves and the surrounding tissues can be prevented. On account of its great importance, I shall limit myself to an account of the technic of nerve suture and nerve transplantation which we have followed, and shall only mention in an abbreviated form certain guiding principles in the surgery of the peripheral nerves.

PRINCIPLES IN SURGERY OF PERIPHERAL NERVES

1. *Identification of the Injured Nerves.*—Identification may appear difficult when many of the ordinary landmarks have been destroyed. According to my experience, care and patience and a good knowledge of anatomy are all that are required. If the surgeon will first expose a normal part of the nerve, or nerves, below and above the lesions, and will work from normal to scar tissue, the identification of injured nerves and their branches—even in complicated plexus injuries—is always possible.

2. *Exposure.*—The lower end of a divided nerve should always be exposed and freed first, because it is the degenerated end. The upper end should be exposed for as short a time as possible, and should be handled with special care. Strong traction should never be made on it, and it should not be stretched in the effort to approximate the ends of a divided nerve.

3. *Examination for Nerve Bundles.*—If there is no gross separation of the ends of the nerve, but only a bulbous thickening, the bulb should be minutely examined before being sectioned transversely. No matter whether the patient presents the symptoms and signs of a complete interruption or not, the bulb should be carefully incised in a longitudinal direction in the search for nerve bundles which can be saved. In a considerable number of patients, some perfectly good nerve bundles are preserved on the surface of or in the deep parts of the bulb, and such nerve bundles may be freed from the scar tissue and not divided. When these nerve bundles run on the surface of the bulb, they can be isolated without much difficulty. When they run through the center of the bulb their isolation and preservation may require much patience.

4. *Excision of the Bulbous Enlargement or of End Bulbs.*—When the operator has demonstrated that there is a complete anatomic discontinuity of the nerve, the bulb or end bulbs should be divided transversely, with a sharp scalpel, in successive sections until normal funiculi can be readily recognized by their characteristic appearance. As the upper end of an injured nerve is often swollen, perfectly good funiculi may present an edematous or glairy appearance. Usually—and this was especially noted in the sciatic nerve and its branches, and in the median nerve—there is fairly active bleeding from the intranervous blood vessels when normal funiculi are reached. This bleeding can usually be controlled by gentle pressure with a sponge wrung out in hot saline solution. Occa-

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sionally, the bleeding from the central end of the sciatic nerve is so active that the isolated vessel must be grasped with fine mosquito forceps and must be

Fig. 2.—Suture of posterior interosseous nerve, showing the perineurial sutures passed.

ligated with very fine catgut or silk. While the vessel is being exposed, the bleeding can be controlled by gentle compression of the nerve with the fingers cephalad to the bleeding point.

There is an interesting and easily understandable difference between the central and the peripheral end bulbs. When the peripheral end bulb is being sectioned, the successive cross sections present the appearance of smooth, shiny scar tissue, until one section is reached which contains the ends of many normal funiculi without any scar tissue. When the sections of the central bulb are made, the transition from scar to normal is much more gradual. In successive sections there is an increasing number of good funiculi until an altogether normal transverse section is exposed. When end bulbs are sectioned outside of the body, this difference between the central and peripheral bulbs will identify which of the bulbs was the central and which was the peripheral one.

5. *The Prevention of Rotation of the Nerve Ends and Distortion of the Nerve Pattern.*—Before the sections of the bulb or bulbs are made, the epineurium on the outer and inner aspects of the nerve is grasped with mosquito forceps a little cephalad (in the central end) and a little caudad (on the peripheral end) to the points at which, it is estimated, the final sections will have to be made. These forceps grasp only scar tissue and epineurium, and should remain in place until part of the end to end suture has been completed. By this means the handling of the nerve in the succeeding manipulations can be reduced to the minimum, and rotation of the one or other end prevented.

The ideal apposition of the ends of the nerve would be one in which the cut end of each funiculus is placed exactly opposite to its corresponding end, but in practice this is impossible. For the best apposition of the nerve ends with the least distortion of the nerve "pattern" a good understanding of the arrangement of funiculi in the different nerves, and in the different parts of each nerve, is indispensable. The investigations of Stoffel, Compton, Langley and Hashimoto, and others have shown that there is probably a definite nerve pattern and that within each nerve trunk there is a definite arrangement of the nerve funiculi and even the nerve fibers. Langley and Hashimoto, and Compton have demonstrated that there is a complicated arrangement of the funiculi and fibers within a nerve trunk, as "nerve plexuses" occur within the nerve trunks because of the frequnt rearrangement of the fibers within the nerve.

I have made a large number of observations in my peripheral nerve operations, and Dr. H. A. Riley and I are investigating this subject on human cadavers. In the large majority of nerves, there are, at different levels, definite groupings of the funiculi, easily recognizable with the naked eye. In very many instances these groupings are so regular that by the proper suture the end of each divided funiculus can be brought into approximate apposition to the corresponding end, and rotation of the ends of a divided nerve and distortion of the nerve pattern can be prevented.

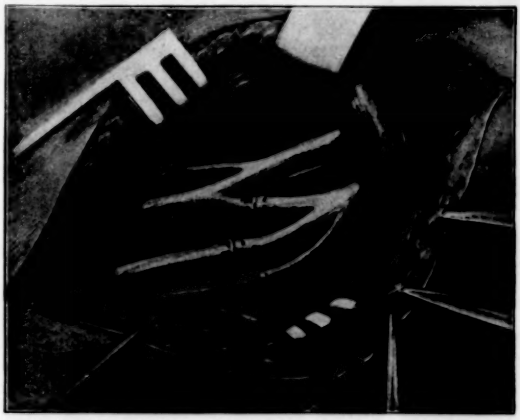


Fig. 3.—Suture of the outer head of the median nerve, and the ulnar and the internal cutaneous nerves, showing epineurial mattress sutures.

In the majority of instances in which I have resected bulbs in gross continuity, or end bulbs in complete separation, the nerve patterns in the central and peripheral ends visible to the eye were either identical or very similar. An entirely different pattern was observed in a surprisingly small number of the patients.

It is certain, I believe, that ideal peripheral nerve surgery will be possible only when we have learned a great deal more of the minute structure of the peripheral nerves, and of the arrangement of fibers and bundles of fibers (funiculi) to form the nerve "pattern," and have developed a finesse and delicacy of technic which an ideal nerve suture demands.

without tension by relaxing the nerve by flexion of adjoining joints (flexion at the wrist for injury of ulnar and median nerves in the forearm; flexion at the elbow for median and musculospiral nerves in the arm and forearm; extension at the elbow and adduction of the arm for the ulnar nerve in the arm and forearm, plantar flexion of the ankle, flexion at the knee, etc., for nerves in the lower extremity). Transplantation of the ulnar nerve to the front of the internal epicondyle is often necessary for the approximation of the ends of an ulnar nerve injured above or below the elbow. When this is done, especial care must be taken that the branch of the ulnar nerve to the flexor carpi ulnaris is not injured. If all of these procedures have

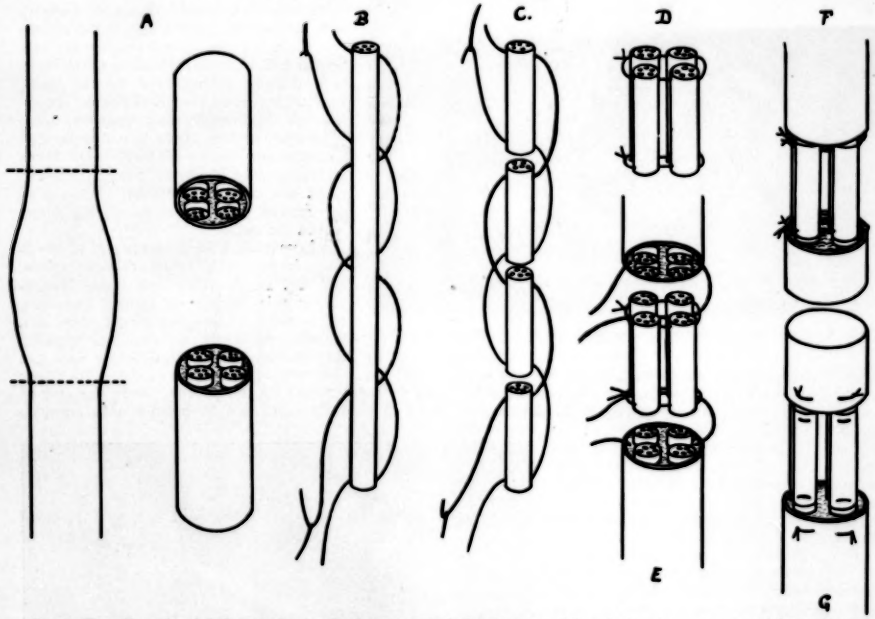


Fig. 4.—The cable graft: *A*, bulb resected and ends of nerves exposed; *B*, sutures passed through the cutaneous nerve used from cable graft; *C*, nerve divided into segments; *D*, cable graft ready for transplantation; *E*, sutures passed through ends of cable graft and ends of nerve; *F*, sutures tied; *G*, perineurial sutures tied. (Diagrammatic.)

We can obtain additional knowledge of nerve pattern by the electrical stimulation of the ends of a recently divided nerve. I have been investigating this aspect of the subject in the nerves of freshly amputated limbs. My investigations are far from complete, but a number of definite observations have been made, which will be reported at a later date.

6. *Approximation of the Divided Ends of a Nerve.*—The approximation should always be made without tension. In the majority of instances, this can be accomplished by freeing the nerve ends—especially the peripheral part—for a considerable distance. In this procedure, however, due consideration should be given to the location of branches, and care should be taken that important sensory and motor branches are not injured. The nerve ends can often be approximated

been used and the nerve ends cannot be approximated. a nerve grafting operation must be performed.

TECHNIC OF NERVE SUTURE

The suture of the divided ends of a nerve is a very delicate procedure. For suture material I use fine Carrel needles with very fine silk. For the actual union perineurial and epineurial stitches are used. I do not believe that epineurial sutures, alone, will bring the ends of the nerve into the best approximation. If a little bleeding occurs into the nerve, the blood is apt to collect between the ends of the funiculi, and the resulting scar tissue is apt to interfere with the down growth of the neuraxes. After the proper relation of the nerve ends has been determined, so that the minimum amount of distortion of the nerve pattern will

occur (effected by the attachment of mosquito clamps to the sides of the nerve so that the arrangement of the funiculi in both ends is made visible) one, two or three fine perineurial stitches are passed, the number depending on the arrangement and number of the funiculi. The epineurium will usually have retracted, and no special difficulty should be encountered in passing the stitches through the perineurial tissue between the funiculi if the needle and the suture material are sufficiently fine. I have found it practical to hold the needles in fine mosquito forceps rather than in the fingers, and to grasp the needle with the forceps about 0.5 cm. from its point. When the nerve consists of a number of small funiculi (as in the ulnar, median and sciatic nerves) two or three of these perineurial stitches are necessary. When the nerve consists of from two to four large funiculi, two of these stitches are usually sufficient to approximate the funiculi. If the sutures are well placed, with due regard to the nerve pattern, a fairly accurate apposition of the ends of the funiculi is possible (Figs. 1 and 2). This apposition would be more perfect if the sutures were passed through each one of the large funiculi, but such a suture is inadvisable on account of the interference with a certain number of nerve fibers which such an "end to end funicular suture" would entail. Professor Huber, to whom we are indebted for very remarkable experimental and histologic studies, has shown me microscopic sections which demonstrate beautifully how nerve fibers will pass around such a fine perineurial suture.[1]

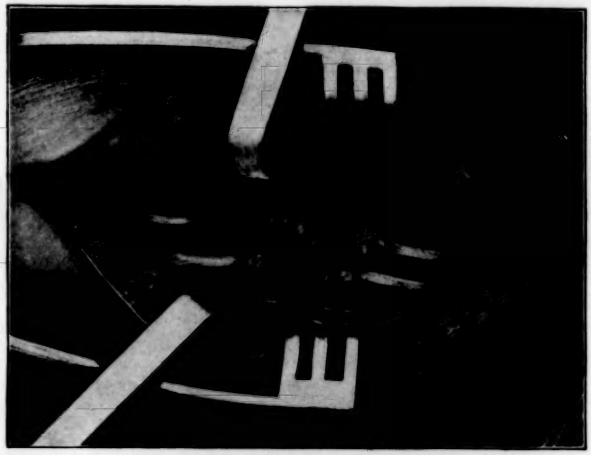


Fig. 5.—Median and ulnar end bulbs.

All of the perineurial sutures should be passed before they are tied, and, when they are tied, care should be taken that the sutures just bring the funiculi into apposition. If the sutures are tied too tightly, the funiculi are bent at their ends with a resulting poor approximation.

After the perineurial sutures have been tied, the mosquito forceps can be removed. The epineurial stitches should be placed with exactness, so as to approximate the free borders of the epineurial sheath. I believe that the best approximation can be obtained by mattress sutures (Figs. 1 and 3); they are much less apt to tear out than are simple sutures. From four to five mattress stitches suffice, each suture being left long for traction while the succeeding one is being passed. In some sutures of the sciatic nerve, I have made a continuous running suture of the epineurium, as in the Carrel technic for blood vessel suture.

NERVE TRANSPLANTATION

Transplantations of the nerve to a more superficial level are sometimes necessary. To separate the line of union from the bone, muscle or fascia, plastic operations must often be performed, to surround the line

Fig. 6.—Bulbs resected. The defect has to be filled in by a graft.

1. All those who have had the good fortune to be present at Professor Huber's lectures and demonstrations at the sessions of the Neuro-Surgical School of New York for Medical Officers of the U. S. Army have derived not only much information, but also a great stimulus from his as yet unpublished work.

of union with a cuff of tissue and thus to protect it from the surrounding scar tissue. Fat transplantation is sometimes of value, and Cargile membrane may sometimes be useful for a similar purpose.

TECHNIC OF NERVE GRAFTING

As all experience in human surgery and all animal experiments have shown, a direct end to end suture is far preferable to a nerve grafting. If, however, the ends of a divided nerve cannot be approximated by all the methods above described, a graft must be inserted between the ends of the nerve. I shall not enter into a discussion of the comparative value of autografts, homografts and heterografts, and of homografts preserved in cold storage, or in alcohol (Nageotte). The results of animal experiments and experiences in human surgery have shown that the autograft is to be preferred. We have limited ourselves to the use of autografts obtained from the patient himself, and have used cutaneous nerves—the external cutaneous of the thigh, the internal saphenous in the leg, the anterior and posterior cutaneous branches of the musculo-cutaneous, and the internal cutaneous in the upper extremities.

The grafts were obtained by the method later described, and we made use almost exclusively of the "cable grafts"—that is, grafts consisting of a number of strands of a cutaneous nerve. I believe that wherever possible the cable grafts should be made up of as many strands as there are funiculi of the same size in the nerve ends. The nerve strands which are to be united into a cable should be handled as little as possible with instruments or the hands, and for this reason, I have devised the following method (Fig. 4):

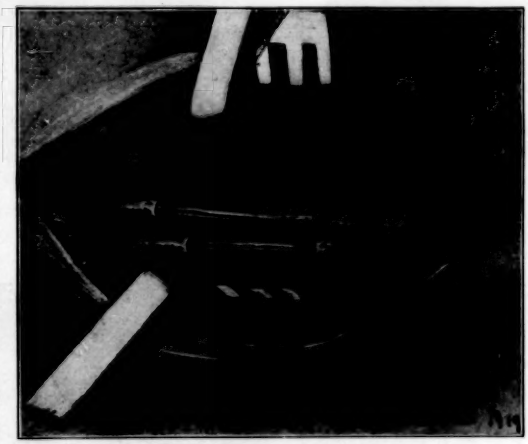


Fig. 7.—Cable grafts in place, bridging over defects in median and ulnar nerves. Epineurial stitches have been tied.

After having determined the length of the defect which is to be bridged over by the graft, and the number of strands that will be required, one or several cutaneous nerves are exposed and carefully dissected out until they remain attached only at their upper and lower ends. Two sutures are then passed in and out of the nerve at measured distances. For the sake of description, let us say that the graft is to be 7 cm. long and is to consist of three strands. The one suture (*A*) is passed through near the attached upper end of the freed nerve, from the inner to the outer side of the nerve; a loop is left loose, and the needle is then passsd through the nerve from the outer to the inner side a little more than 7 cm. from the first point; again a loop is left, and the needle passed through the nerve, from its inner to its outer side, at the same distance from the last point. The needle is then laid aside and a second needle and suture taken. This needle (*B*) is passed through the lower end of the nerve, from its outer to its inner side, a little more than 7 cm. from the point of emergence of needle A. A loop of the suture is left and the needle passed through the nerve, from the inner to the outer side, at a point 3 mm. above the point of emergence of suture A; finally, the needle is passed through the nerve, from its outer to its inner side, 3 mm. proximal to the next point above. The points at which the suture A has passed through the nerve correspond to the upper ends of the graft; and the points through which needle and suture B have been passed correspond to what are to be the lower ends of the strands. After the loops have been carefully arranged, the nerve is cut with fine scissors or a fine scalpel (1) 1 mm. above the beginning of A, (2) 1 mm. below the beginning of B and (3) between each two points through which sutures A and B are passed, apart in the nerve. An assistant then grasps the two ends of suture A and the operator the two ends of suture B. When traction is made, the strands are drawn together. Then each suture is loosely tied. *A* brings all of the upper ends of the strands together; *B* brings all the lower ends together.

After the cable graft has thus been made, it is transferred to its place between the divided ends of the main nerve and sutured in position, according to the method shown in Figures 4, 5, 6 and 7.

I have performed fourteen cable grafts by this method, and have found it a very satisfactory procedure, in which the handling of the strands of the nerve to be used for the graft is reduced to a minimum. The method is a very simple one when its technic has been mastered.

There are a number of questions in grafting to which we have not yet any definite answer. How do these grafts act? Is it advisable to expose the graft eight or more weeks after the first operation, at a time when regeneration through the graft, down to its lower end, has occurred, in order secondarily to resect the lower union and freshly unite the end of the graft to the peripheral end of the nerve? These and other questions cannot be considered here. I have exposed the lower end of one graft ten weeks after the first operation, and have found it in such a good condition, without scar tissue, that the wound was closed without interfering with the lower end suture. It is possible that in some cases, at least, the resection and the resuture may be necessary. This will depend on whether or not the regenerating neuraxes will pene-

trate a recent suture line more easily than they will an older one.

If the condition of a nerve permits it, a neurolysis is always better than a resection and suture, and a resection and suture far better than a resection and grafting. The results of neurolysis, in cases in which it may properly be employed, are very satisfactory, and we have seen the improvement begin almost immediately after the operation. Insufficient time has elapsed to permit me to speak of the results of our nerve sutures and nerve grafts. Although nerve grafting has been very successful in animal experiments, the question of what results can be obtained in grafts in the human being has still to be answered. We believe that the era of perfect peripheral nerve surgery is still to come, when we have learned much more about the minute internal anatomy of the peripheral nerves. The wide and varied experience gained from the war is surely of great value, and has greatly enriched our knowledge. The points of view in this paper are taken in an effort to develop new points of view in the surgery of the peripheral nerves.

THE INDICATIONS FOR SURGICAL INTERVENTION IN PERIPHERAL NERVE INJURIES *

KARL WINFIELD NEY, M.D.

Major, M. C., U. S. Army; Chief of Neurosurgical Service, U. S. Army General Hospital No. 3, Colonia, N. J., and U. S. Army General Hospital No. 41, Fox Hills, Staten Island, N. Y.

NEW ORLEANS

Lesions of peripheral nerves have proved to be a rather common complication of gunshot injuries of the extremities. This is especially true of shell wounds, in which the rough, serrated fragments produce extensive laceration of the soft parts and comminution of the bone.

The nerve trauma may result in a complete division of the nerve trunk, or only a portion of its fibers may be injured. It may be crushed against a bone and its fibers interrupted without rupture of the nerve sheath. Frequently it is only bruised, producing swelling and hemorrhage in the nerve substance. In all these conditions, function is usually lost immediately, and if the nerve fibers have been divided, it is not regained until the axis-cylinders have completely regenerated and connected up with the end-plates which subserve the function of motion, sensation, etc. This regeneration of the axis-cylinder consists of a complete outgrowth from the point of division to its terminal end-plate, along the distal segment of the divided nerve which acts only as a conducting structure for the direction of their course. When scar or other interposed tissue prevents the downgrowing axis-cylinders from reaching the divided end of the distal segment, they stray in all directions in their futile efforts, and meeting only the antagonistic reception of a foreign tissue, continually change the direction of their search, until the result of these never-ceasing contortions is the production of a bulky mass of nerve tissue which constitutes the neuroma frequently found on the proximal end of the divided nerve. With the contraction of scar tissue about a divided nerve or within a nerve trunk, the axis-cylinders gradually lose their regenerative activity, and with their complete strangulation, all growth ceases. A nerve may even escape injury at the time of the wound and subsequently become caught in bone callus or scar tissue and compressed until it can no longer convey impulses, producing a physiologic interruption. If this compression is severe enough to interfere with the blood supply of the nerve trunk, degeneration of the axis-cylinders is the result. Such lesions do not develop a neuroma, and at operation, if it is possible to dissect the nerve out from the scar tissue it often appears as a flattened cord. When sectioned, the ends do not show nerve bundles but present rather a gelatinous appearance. This condition may extend some distance up and down the nerve trunk; and often after making many sections to find normal nerve bundles, we have been compelled to make a suture in nerve tissue having this appearance, believing it preferable to grafts; in all such cases, however, regeneration seems to be progressing favorably. Frequently nerves which have been compressed only to the extent of impulse interruption will regain their function in a few weeks after the scar tissue is removed, as there has not been anatomic interruption of the axis-cylinders.

The majority of patients with peripheral nerve injuries recover without operation; but it is always a question of considerable time before positive evidence of regeneration is to be seen in the return of voluntary motor power or the clearing up of areas of anesthesia. During the period of regeneration or the time required for the downgrowth of the divided axis-cylinder, there are months of patient waiting during which time it is difficult to determine positively whether or not regeneration is progressing satisfactorily. We believe the rate of growth of an axis-cylinder, in the process of regeneration, is from 1.5 to 2 mm. a day, provided its growth is not inhibited by scar tissue, sepsis, etc.

Practically all war wounds are infected and suppurate for some time, and it would be folly to attempt nerve suture during this period. Our experience has taught us that it is not safe to operate on wounds recently healed, especially those which have suppurated for some time. Many bacteria lie dormant in these tissues, and it requires only some slight traumatism to produce a recrudescence of the infection. As a rule we do not consider it advisable to operate in the vicinity of wounds which have suppurated until they have been completely healed three months or longer.

Most of the patients we now see in military hospitals are those who have waited a number of months for the clearing up of infections; and when the time has arrived after which operative procedures are justifiable from the standpoint of sepsis, the proposition has then to be confronted as to just how much progress the nerve has made toward regeneration.

When a diagnosis of peripheral nerve lesion has been made, the vital question as to the extent of regeneration immediately presents itself; and frequently this can be answered only after a comparison of notes made at several consecutive examinations. Only when it is possible to determine the progress or fixity of symptoms by the comparison of several accurately recorded examinations is it possible to determine with any considerable degree of certainty whether regeneration is progressing satisfactorily or not. It will be readily understood that if examinations are not accurate and the record of findings not complete, they may be responsible for entirely false conclusions. In the

* Read before the Section on Orthopedic Surgery at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

examination of muscles supplied by an injured nerve it is not sufficient to note simply that a certain group is paralyzed or that all muscles supplied by a given nerve are involved. Each muscle, as far as possible, should be examined individually to determine the slightest function as seen in the movement of its tendon or its influence on the position of a given joint. If some slight movement is overlooked at one examination and recorded at a subsequent observation, it might be considered as evidence of regeneration. Attention should here be directed to mistakes often made in the observation of muscular action as seen in false or substitution movements. Many patients will learn to simulate to a greater or lesser degree certain movements which are suggestive of function in paralyzed muscle; and unless examinations are made to determine individual muscular function, error is almost certain.

The examination and recording of sensory disturbance are of great value in determining the progress of regeneration, for one of the earlier signs of regeneration is the contraction of fields of anesthesia. Here definite charts should be made at each examination to show the exact area of sensory disturbance. This must not only show the definite area of sensation involved but must also state the nature of the sensation examined, whether it be by light touch, by cotton or camel's hair brush, pin prick, pressure or other means. The examination for the more delicate sensations of degrees of temperature, etc., are of great interest, but at this stage give no information which we may consider of any great value in determining regeneration. The recording of sensory findings in terms of epicritic and protopathic is to be discouraged, as a much more reliable chart may be had by recording the findings of the individual sensations.

The electrical examination of paralyzed muscles is of great value in questions of diagnosis, and very often the differentiations of functional and organic lesions is impossible without its use. But after the diagnosis of division is definitely made it is of little value in determining the presence or absence of regenerative changes. The reaction to faradism is always slow to return, and as a rule does not appear until after definite voluntary motion is evident. The galvanic current gives definite signs of degeneration by its slow contractions, and in neglected cases suggests the fibrous character of the muscular tissue by the complete loss of all response to such stimulation; but outside of giving us such information, which is indispensable from a standpoint of diagnosis, it gives us very little regarding regeneration until a late stage. The quickening of the galvanic response and the return of normal polar reactions are suggestive of regeneration; but we frequently see all of these changes brought about in completely nonregenerating nerves by proper physiotherapeutic treatment.

Muscular tone is lost from the time of injury and does not return until the motor fibers are connected with their end-plates. It is a valuable indication of regeneration, but it is manifest only a short time before actual voluntary movements are noticed. After a careful study of our comparative findings with regard to voluntary motion, areas of anesthesia, electrical findings, tone, trophic changes, etc., it may readily be seen that while it is possible to make a diagnosis of complete division of a nerve, the question of determining its regeneration is difficult, even in the hands of those who have had considerable experience in this class of work. It is often only after months of close observation that one may make a diagnosis of satisfactory regeneration on the foregoing clinical findings. In fact, many operators of experience consider that at the end of six months, if there is no decided evidence of regeneration as seen in the return of voluntary motion, the nerve should be exposed, and at that time a decision should be made as to the operative procedure which should be adopted—whether resection with suture or simply freeing the nerve of scar tissue.

We do not believe that a properly conducted aseptic exposure of a nerve and the freeing of it from scar tissue can in any great degree be productive of harm; in fact, many cases have shown the value of such a procedure. But it has been our experience that, as a rule, it is not possible to determine completely the condition of a nerve after exposure, and the tendency is too often to resort to resection and suture. This, of course, is indicated when the ends are definitely separated and a neuroma is present; but this is very often not the case, the nerve being found simply incorporated in a mass of scar tissue. From the macroscopic appearance alone the operator is unable to say whether or not axis-cylinders have been able to penetrate through the scar tissue, and should he perform a resection and suture it would mean interruption, and all the regenerative efforts and progress attained in these months would be lost.

When a nerve is partially or completely divided, the divided portion has a tendency to retract, and the formation of a neuroma is the rule. When this neuroma is absent, it is almost impossible to differentiate between anatomic division or a strangulation of the nerve trunk. When there is no definite neuroma, it is probably a case of strangulation. Whether or not it is a complete anatomic division or strangulation with degeneration of the axis-cylinders, the process of regeneration must proceed the same. The question immediately asked is, Why not perform a resection of the part involved in scar tissue, and make a suture where the section shows normal appearing nerve bundles? There would be no objection to this procedure if it were possible to make nerve sutures perfect in respect to the physiologic topography of the nerve trunk. This we are unable to do at the present time with any degree of certainty in spite of all precautions directed toward the prevention of axial rotation of the nerve trunk. In nerve suture, the impossibility of correct approximation of the individual physiologic fascicular elements, makes it an imperfect operation; motor fibers most certainly will be connected with sensory pathways in the lower segment, and sensory fibers with motor pathways, so that in this way many fibers are physiologically lost. Motor fibers of the upper segment, accustomed to the control of a given muscle may be directed to another muscle and there will be a question of reeducation involved. A realization of our limitations in nerve surgery should compel us to pay the greatest respect to the physiology of nerve structure in individual nerves and we should be on our guard against assuming a too radical attitude with reference to nerve suture.

When the proximal end of a divided nerve is subjected to mechanical irritation, the patient complains of a tingling sensation resembling an electric shock in the area of the sensory distribution of that nerve. For instance, after a division of the musculospiral nerve,

pressure on or tapping over the nerve at the level of the lesion gives this peculiar tingling sensation, which the patient immediately localizes on the dorsum of the thumb, index finger and the adjacent portion of the dorsum of the hand. The sensory distribution of all other nerves, when divided, will be just as accurately located. Tinel, who called attention to this phenomenon, has demonstrated that when axis-cylinders are not protected by their normal coverings they are very easily stimulated by the slightest mechanical irritation.

The progress of the downward growth of the sensory axis-cylinders can be followed very accurately along their course by this method, and from month to month their progress may be judged by the persistently lower level at which this tingling may be elicited by gentle tapping along the course of the distal segment of the nerve. At first, it is possible to elicit the sign only at the level of the lesion; at the end of six weeks, if regeneration is progressing favorably, it may be found an inch or an inch and a half below the level of the lesion. At the end of three months it may be found 4 or 5 inches lower, and so on until it is present at the distal extremity of the nerve. This indicates that certainly some sensory fibers have been able to bridge the nerve gap, that they have found the separated end of the distal segment, and that they are progressing down. It gives us no information regarding motor fibers, but we consider it a valuable sign of at least some regeneration; and if sensory fibers can find the distal end of the nerve, there is certainly reason to expect a certain proportion of motor fibers to do the same. It is true that not all the fibers may get through the scar tissue; but when this formication or tingling on percussion progresses steadily down the course of a nerve, that is, with maximum intensity as compared with that found at the level of the lesion, and at a rate equivalent to the growth of a millimeter and a half a day, we may conclude that scar tissue is not seriously influencing the regenerative process. Though there are no other signs of regeneration present, the finding of formication advancing steadily downward should be considered a favorable indication of spontaneous regeneration. When it is present at the level of the lesion and does not progress below, we have always considered it to be a positive indication for operation, and our operative findings have always borne this out. When formication is not intensive by percussion below the lesion, or when it only extends a short distance, stops, and shows no further progress, the indications are for surgical intervention.

I have several times heard surgeons say that formication was present along the course of a nerve and at operation they had found the nerve completely divided. It is quite possible for just a few sensory fibers to get through what appears to be a complete division; but I am quite sure that immediately after the operation these surgeons found the formication absent. The sign of formication has a very definite prognostic value, the favorableness of which depends on its intensity and rate of progress, and, like most other diagnostic signs, requires experience for its interpretation. We are constantly seeing patients with nerve lesions of from eight to ten months' duration completely recover motor and sensory function. If we had depended on other signs of regeneration alone and ignored Tinel's sign, many of these patients would have been operated on, and much valuable time would have been lost. We have on many occasions seen complete motor and sensory function regained after more than twelve months had elapsed, during which time the only evidence of regeneration seen was the progressively downward course over the nerve trunk, at which formication could be strongly elicited.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. ELSBERG AND NEY

DR. FREDERICK C. KIDNER, Detroit: I want to say one word in substantiation of what Dr. Ney has said in regard to the probable recovery of very large numbers of injured nerves. I disagree with him, however, regarding the necessity for operation. A very large percentage of nerve injuries should be explored; because there are numbers of cases that will be greatly hastened in recovery by an early freeing from dense scar tissue. The objection he has raised to operation, based on the probable recurrence of sepsis, is, I believe, to be largely avoided by the use of the two stage operation. That is, as soon as a wound is healed, where there is a severe nerve injury, it is possible to do an exploratory operation that does not in any way involve the nerve itself, but makes a pathway to the nerve, so that if sepsis does recur, it is easy to throw the wound wide open and drain it. If sepsis does not recur, it is possible, in a week or ten days, to go in again, explore the nerve itself and suture it, if necessary. What he says about leaving nerves alone when they seem to be badly scarred, but are not actually cut across, is very wise. The nerves that look almost impossible at the time of exploration, if dissected free, will many times recover of themselves. The matter of nerve suture is an encouraging one. The trouble with the people who have made such discouraging prognoses on nerve suture, it seems to me, is the fact that they have not been content to wait long enough. In my service in England, I began to do nerve sutures in July, 1917; but in few cases did I begin to see results before July, 1918, when I left the British service. My total results are just beginning to come to me now, in July, 1919. They are not yet put together, but they are very encouraging and are so good that I am convinced that we should give nerve suture every chance, rather than to resort to early tendon transplantation and other destructive operations. I think that in nerve injuries, tendon transplantation has a very limited place, and should not be resorted to until three or four years after the receipt of the injury to the nerve.

DR. SAMUEL W. BOORSTEIN, New York: It was worth while to attend a meeting of this kind and learn of the cooperation necessary in these cases between the neurologist, neurologic surgeon and orthopedic surgeon. This is possible, even in a small hospital. I have had the good fortune of working with Dr. A. S. Taylor and Dr. Byrne at Fordham Hospital, N. Y., in many of these cases, and the best results were secured because the preoperative and the postoperative orthopedic treatments were not neglected. If this cooperative work were generally carried out, the results would be more encouraging than they have been. The orthopedic surgeon should, however, always assist at the operation. I really cannot add much to the details of the technic. Dr. Taylor follows the same technic as Dr. Elsberg. The only thing I would emphasize is the importance of support for a long time. If massage is used, we do not get much atrophy. We have kept one case on a support for a long time; and on leaving it off for three weeks, we had to resort to it again.

DR. DEAN D. LEWIS, Chicago: One of the first things that comes to the consideration of the nerve specialist is whether peripheral nerve suture should be done. From experience in the evacuation hospital, it seems to me that every nerve injury that comes into the evacuation hospital should be explored. In some cases, end to end suturing should be done. I agree with Dr. Ney that the majority of these patients recover. We are operating in 30 per cent. of peripheral nerve lesions, and the majority of patients are recovering slowly. If the diagnosis of anatomic division is

made, end to end suture should be done, with an autograft inserted. The only surgery that is reliable is end to end suture without tension. If the case goes two or three weeks without recovery and remains stationary, it should be explored. Muscle neurolysis is much superior to any other neurolysis that I have tried. I have seen many cases that have gone on for six months with complete physiologic interruption. Dr. Danforth's statement that the cards giving the history of the cases should be sent through with the patients is timely. This is one of the most essential things in war surgery. How it happened that the field medical cards were taken away at the port of embarkation, so that when they arrived we had no idea of what had been done, is hard to understand. We had to take the patient's word until we could verify it from the adjutant general's office.

Dr. Martin B. Tinker, Ithaca, N. Y.: I hesitate to prolong discussion, but on the basis of experience with 600 peripheral nerve injuries at Base Hospital No. 26, I wish to confirm what Major Ney has said about the number of spontaneous recoveries. In the second place, I wish to call attention to the unreliability of the so-called Tinel's sign, deep tingling on percussion. Dr. Ney has emphasized its value. It is a subjective sign. The patient tells you whether he feels or not; and he is often so anxious for recovery that he feels as if he were getting it, when he really is not. In many instances patients would tell us that they felt it, when, at operation, we found complete severance of the nerve with several millimeters gap between the divided ends. I feel, therefore, that this sign is unreliable. A third point was brought out by several of the speakers: the desirability of delay in operation. Dr. Porter will confirm this experience that we had, that mild manipulation only, and no operation whatever, lighted up serious streptococcic infection in several cases that had been healed for months, leading us to believe that we should act with great caution in handling these cases.

Dr. Tom A. Williams, Washington, D. C.: A diagnostic feature that has not been mentioned is ascertaining whether or not there has been regeneration by means of the periodic or augmentative current, a sign that is not subjective but objective. Suppose that there is a partial division of the musculospiral nerve and the nerve does regenerate partially. Let us suppose, also, that some of the fibers that have not regenerated are motor fibers. In what way do we ascertain whether all the fibers have not regenerated and that a suture is therefore necessary? The way it is done is to ascertain the response of the muscles to stimulation by what is known as a periodic current. That current stimulates only muscles of which the nerve fibers have undergone degeneration. If the response of any of the muscles that have been stimulated by the periodic current alone disappears when this current is applied, you may assume that that nerve has regenerated. If one of the proximal branches of the musculospiral, the median, ulnar or even the sciatic, which goes to a muscle near the room of a limb, has been damaged and we find within a certain length of time that there is no regeneration of the branch to these muscles, that is to say, that their stimulability by a periodic current does not disappear, we know that there is no regeneration in these fasciculi, even though there is sensory or distal motor regeneration. Hence, in that case, we must join that portion of the nerve. Even when Tinel's sign is really present and is not merely in the imagination of the doctor, that does not mean that there is entire regeneration of the nerve. It is common to find a partial division in the nerve. What we want to know is whether there are some fibers that have not regenerated because they are divided. Only in that way can we arrive at a conclusion regarding this point. It is a method that has not been utilized in this country but has been in France. One should wait for years before one can record a hopeless prognosis and resort to tendon transplantation, which at least gives only a minimal efficiency of the limb. Now that we have so much better methods of grafting with grafts from other animals, we should never resort to tendon transplantation until the methods of approximation and interpolation of foreign grafts have been employed.

Dr. W. Wayne Babcock, Philadelphia: I should like to refer to a phase of reasoning in Dr. Ney's paper regarding recoveries after these important wounds of war; that is, the assumption that nerve injury inflicted by gunshot is more prone to recovery than that from a surgeon's knife. The argument apparently is, do not operate except in very limited number of nerve injuries, for nerves mangled by bullet or shell usually do better when uncorrected by surgical art. To carry out this idea to its final conclusion, one should advocate shooting through nerves as the best method of preparing them for regeneration. This logic recalls the old statistics of cesarean section, showing that these operations when performed by the horns of enraged bulls actually gave better results than when performed by the hands of surgeons. To claim that nerves that have been badly mangled and have had no operative attention will make a better recovery than those that have had a skilled operation correction under aseptic conditions seems rather curious. Yet a number of neurosurgeons apparently believe this. In more than 500 nerve injuries treated in U. S. Army General Hospital No. 6, Fort McPherson, Ga., 142 of these cases were mild, showing evidence of spontaneous recovery and were treated only by massage and electricity without operation. Up to May 1, 33 per cent. of these unoperated cases remained the same, and 67 per cent. have improved. In contrast: out of 148 much more severe cases subjected to hersage or neurolysis, 80 per cent. now show improvement. A number have shown improvement in the first few weeks after operation. As to cures: 17 per cent. of the unoperated; 20 per cent. of the neurolized and 10 per cent. of the hersaged cases show practically complete sensory and motor restoration; in other words, in our operated cases, progress is better and more rapid than in the milder unoperated patients.

Of about 170 cases of nerve sutures, 25 per cent. already show improvement and progress viewed in relation to the periods of time that have elapsed since operation; that gives us much confidence as to the final satisfactory outcome of these cases. A large percentage of gunshot injuries of nerves should be operated on because, first it is best for the nerve, and, secondly, it enables the associated correction of important orthopedic conditions. Because a man has a nerve injury, should he be deprived of the benefit of a needed orthopedic operation? Practically all these patients have large deforming scars with muscles bound together as a result of infection. Many have retained foreign bodies or joint or bone involvement. For unhealed wounds of soft tissues, we have found wound excision after the zinc chlorid and ethereal methylene blue sterilization with immediate operation on the nerve both safe and time saving. A nerve that has been damaged will recover in a progressively decreasing ratio the longer the delay after the injury. An early operation, if safe, is the desirable operation. Granted an aseptic field it is much better, in nerve injuries to look and see, than to wait and see. In operating, it is not enough to isolate a trunk that looks like a nerve. It may be only a mass of connective tissue. If you cannot demonstrate fasciculi the nerve sheath should be split. If that is not enough you should open the nerve along the normal line of fibers until you determine accurately the amount of nerve substance present. If only a few fasciculi remain undestroyed it is often better to resect freely the damaged area and do an accurate suture so that the man will have a chance to get from 90 to 100 per cent. return of function, rather than 10 to 20 per cent.

Dr. Karl W. Ney, New Orleans: I did not wish to leave with you the impression that it is a discouraging procedure, but there are refinements in nerve surgery which should receive more attention, and the fascicular topography that Dr. Elsberg showed you in the slides is important. It is perfectly safe to remove scar tissue, but the great tendency is to do a resection when one finds a nerve that looks bad. In the suturing of nerve trunks there is always the probability of connecting up sensory fibers with motor and motor with sensory, also fasciculi which have had control of one muscle will be connected up with another muscle whose functions are different; for this reason nerve suture is not

a perfect operation from a physiologic standpoint. If it is possible not to do a resection of a nerve but simply free it from scar tissue I think we are doing the proper thing. However, the last word in nerve surgery has not been said.

SYPHILIS OF THE EPIDIDYMIS*

H. E. MICHELSON, M.D.
Instructor in Dermatology, University of Minnesota Medical School
MINNEAPOLIS

Syphilitic involvement of the epididymis or cord, independent of disease of the testicles, is rare, and, if present, is overlooked in the examination of patients when one is searching for signs of syphilitic infection.

The discovery of several cases of infiltrated epididymides and thickened cords, due to syphilis, led to a search for more minute descriptions of these conditions, but little could be found.

Dr. Benjamin Bell, surgeon to the Royal Infirmary at Edinburgh in 1793, first called attention to syphilitic diseases of the testicles. Ricord denied the existence of syphilitic epididymitis, while Nélaton, Fournier, Dron (1863), Balme, Gosselin, Pinner, Shadek and others gave accurate descriptions and classified types. Very little has been written in late years on the subject. In 1916, Franklin R. Wright[1] gave descriptions of two cases, and, in 1918, Hinman and Lisser[2] described a single classical case. These two articles are the only ones recently published on the subject. The following notes are gathered from various sources, and are an effort to give a clinical description of syphilitic diseases of the epididymis and to bring the subject to the attention of this section, with the hope that the scrotal contents will be examined more often in the routine survey of syphilitics, and that patients presenting symptoms of disease of the scrotal contents will be examined for syphilis.

Three forms of syphilitic epididymitis have been described: (1) acute diffuse interstitial; (2) chronic diffuse interstitial, and (3) gummatous (circumscribed).

THE ACUTE DIFFUSE INTERSTITIAL TYPE

The diffuse type is the more acute type, and may occur after the second month of infection. Gosselin, however, states that it does not occur before three and one-half months. Very few cases have been reported which occurred before the third year, and the majority of cases occur after the fifth year. Zeissl[3] reports a case which occurred in the second month of the disease, and was accompanied by grouped, papular syphilids in other parts of the body. Shadek has more minutely described the early type. He states that in the early, diffuse variety of syphilitic epididymitis there is a partial or total swelling of the entire epididymis. The swelling at first feels uniform, elastic and smooth, and does not attain a large diameter. As the process continues, distinct indurations arise, which are of variable size—from that of a bean to that of a hazlenut. Pinner states that these nodules are more often found in the upper pole; more seldom, in the body, and rarely, if ever, in the lower pole. The enlargement is rather acute, somewhat painful, and is accompanied by some degree of hydrocele. After a few days, the acute, inflammatory symptoms subside, the swelling of the epididymis diminishes to some extent, and, as the hydrocele is partially absorbed, the condition of the epididymis can be detected by palpation as a painless, irregular, elastic, rather hard thickening of the entire organ. After a few months, the induration may become absorbed and the epididymis return to its normal size, but more often it remains very solid and somewhat sensitive. In some cases, the epididymis becomes atrophic, occluding the lumen. In the early type, the process seldom passes on to the testicle; while in the gummatous stage, on the contrary, the testicle is first attacked. The two epididymides rarely get diseased at the same time.

THE CHRONIC, DIFFUSE INTERSTITIAL TYPE

The chronic, diffuse interstitial type is a connective tissue change which may follow the more acute variety, or it may come on independently of an acute attack. It is then a slow, insidious, chronic, diffuse process, or may consist of a series of distinct cartilaginous indurations. The condition is painless until the attention of the patient has been called to the enlargements, when he may complain of dragging sensations and tingling pains. Examination reveals indurations, usually confined to the upper pole of the epididymis; in most cases, we have found the entire epididymis to be involved. The indurations feel very solid; each may feel as though it were made up of several smaller ones, bound intimately together with a thick covering. They are only slightly tender to pressure. The entire epididymis makes a firm, resistant, solid, uneven, indented tumor in apposition with the testicle, without overlapping it (Lancereaux[4]). The induration ends abruptly and does not taper into normal tissue. The vas deferens is rarely involved.

Effusion, which is usually present at some stage, may perhaps be caused directly by the thickening of the tunica vaginalis, and subsequent disturbances of circulation (Finger[5]), or may be due to a chronic, passive congestion, with resulting transudate (Wright[1]). This fluid collects in the tunica vaginalis testes, leading to the mistaken diagnosis of hydrocele. The fluctuation may be very indistinct because of the much thickened tunica, or because of tension, so that it is difficult to isolate the testicle or the tumor mass. When the hydrocele sac is opened, the layers of the tunica are found to be closely adherent and lined with a thick, organized membrane, while numerous areas of slate-colored deposit are noted in quite a few instances. The fluid is not so great in amount as would be expected, and is thick (Joseph[6]). Wright's experience, however, is that the fluid has nothing characteristic about it and may be as much as 1,000 c.c. The Wassermann reaction on this fluid is negative.

THE GUMMATOUS TYPE

The gummatous type of syphilitic epididymitis begins in the late periods of the disease, but earlier than tes-

* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Wright, F. R.: Syphilitic Epididymitis, Urol. & Cutan. Rev. 20, No. 12, 1916.
2. Hinman, F., and Lisser, H.: Syphilis of Epididymis (good bibliography), Am. J. Syphilis 2: 465 (July) 1918.
3. Von Zeissl, Maximilian: Venerische Krankheiten, Stuttgart, F. Enke, 1902, p. 417.
4. Lancereaux: Treatise on Syphilis, New Sydenham Society, 1866, p. 274.
5. Finger, Ernst: Syphilis, Leipzig and Vienna, F. Deuticke, 1901, p. 150.
6. Joseph, Max.: Geschlechtskrankheiten, Leipzig, G. Thieme, 1901, Part 2, p. 172.

ticular gummas (Pinner). Several small nodules, varying in size from that of a bean to that of a hazelnut, develop independently of each other, more often in the body or head of the epididymis. These nodules may be closely grouped, or dispersed at various points. The process is chronic and develops insidiously, but may be preceded by the history of an injury. The masses are smooth, quite hard and painless. They rarely break down to the extent that they rupture externally. When this is the case, the discharge is scanty and thick, and the subsequent ulceration has a decidedly indurated periphery, the entire mass and ulcer making a tumor with fungoid ulceration. The tumor has a connective tissue origin, either from the external coats of a blood vessel or from connective tissue membrane. It is made up largely of fibrous tissue, and goes through the various phases which are characteristic of all gummas. Gummas of the epididymis may be secondary to gummatous involvement of the testicle. Langhans reported a gross section of a syphilitic epididymis discovered postmortem. He described it as a solid, caseous knot of angular, ramified shape, about 1 cm. in diameter, with a small transparent zone along the edges. The vas deferens was not invaded, which fact, he said, differentiated the process from a tuberculous one.[7]

REPORT OF CASES

The following case reports are taken from the files of Dr. Franklin R. Wright, with whom I am associated.

Case 1 (1440).—*Syphilitic Funiculitis and Hydrocele.*—A man, aged 30, a taxicab driver, had had a chancre in 1911. He was married, had no children, and his wife had had no miscarriages. The early history was not important. The patient had received only local treatment for the chancre and had noticed no subsequent signs of syphilis. In September, 1918, the right side of scrotum began to enlarge. The enlargement proceeded rapidly until, at presentation, the scrotum measured 9½ inches in circumference. It was painless and rather hard. No distinct tumor could be felt, nor could the testicle be made out except at the lower, posterior side. The cord could be felt as thick as a thumb at the ring. The patient was seen by Dr. Wright and the condition diagnosed as syphilitic hydrocele and funiculitis from the history and thickened cord. A Wassermann reaction was positive. After two injections of mercuric salicylate, the circumference of the scrotum diminished 2 inches. The patient was given twelve injections of mercuric salicylate and four 0.6 gm. doses of the neosalvarsan brand of neo-arsphenamin, followed by twelve injections of mercuric salicylate, from Nov. 4, 1918, to March 26, 1919, when both sides of the scrotum were of equal size, and no indurations could be felt, except a slightly enlarged cord on the right side. The patient gained 10 pounds and continued routine treatment.

Case 2 (1480).—*Subacute Syphilitic Epididymitis.*—A married salesman, who had no children, had persistent shreds in the urine and a pain, with some swelling of the right epididymis. He denied ever having had gonorrhea, but a year previously he had had a small sore on the prepuce, followed by a "flushing" of the skin. He had taken no treatment. A Wassermann reaction was negative. A provocative test was advised and he was given one 0.6 gm. dose of the neosalvarsan brand of neo-arsphenamin. His test was then strongly positive. He reported that he felt better after the administration. The course of treatment was continued. The slight induration of the entire right epididymis entirely vanished. He gained 9 pounds. Twelve injections of mercuric salicylate were given and the patient continued the treatment. This case, although the diagnosis was not definitely made, proved to be one of a diffuse, syphilitic epididymitis, as discoverable by the rapid response to antisyphilitic treatment. The wife's blood gave a positive reaction to a Wassermann test.

Case 3.—*Syphilitic Interstitial Epididymitis and Hydrocele.*—A colored porter, aged 25, referred to Dr. Wright for hydrocele, had had a chancre five years before. Three months before coming to Dr. Wright he had noticed an enlargement of the right side of the scrotum. It had filled rapidly. The enlarged, hardened, elastic epididymis could be felt back of the testicle. The circumference of the scrotum was 11¾ inches. The diagnosis was syphilitic epididymitis and hydrocele. The treatment consisted of mercuric salicylate injections, and large doses of potassium iodid. After three treatments the circumference was reduced by 2¾ inches. The patient then lapsed in taking treatments, and it was not possible to follow the case farther.

Case 4.—*Gummatous Epididymitis.*—An unmarried plumber, aged 27, who had been infected with syphilis four years before he was seen by Dr. Wright and who took pills on and off for two years, noticed a small lump in the left scrotum three months previous to coming to Dr. Wright. This enlarged for a few weeks—was not painful; then subsided. A month before his first visit he received a blow in the scrotum. The swelling again appeared and the enlargement became painful. The skin became red and finally burst through, discharging a small amount of gelatinous pus. An ulceration followed, the size of a nickel, on the posterior surface of the left scrotum. The edges became much indurated, and the discharge scanty. The testicle could be palpated, and seemed to be matted in a mass the size of a walnut. The patient lost 18 pounds. The diagnosis was gumma of the left epididymis. Three injections of the neosalvarsan brand of neo-arsphenamin and potassium iodid were given. The healing was prompt. The patient gained weight, but refused to continue the treatment. He was married a year later, and his wife gave birth to a healthy (?) baby. No further report is available.

Case 5 (1418).—A trainman, aged 45, with no history of chancre, had had gonorrhea, which lasted one month one year before he was seen. No complications followed. Eight months later the left epididymus began to swell. There was no pain. A large hydrocele appeared and was opened. The epididymis was indurated; the sac was semielastic and thickened, and the entire cord was thickened. The Wassermann reaction was negative. Iodids were given and the thickening began to disappear. The patient was then given four injections of the neosalvarsan brand of neo-arsphenamin, which resulted in a decided softening of the epididymis. The patient has not subsequently been seen.

Case 6.—*Diffuse Syphilitic Epididymitis and Funiculitis.*—A brakeman, married, with no children, had a thickening of the left epididymis, which a physician had been treating as gonorrheal. He had never had gonorrhea, and his wife was reported well by a gynecologist (Dr. Condit). The left epididymis was hard and knotted, being made of numerous distinct indurations. The entire cord was thicker and harder than the right. The patient admitted having had syphilis seven years previously. He had had some pills, but no arsphenamin. The patient was called out of town before the examinations were completed. There was no Wassermann report and no therapeutic test.

Case 7.—*Gummatous Epididymitis.*—A boy, aged 2 years, a first child and of foreign parentage, concerning whom little history was obtainable, had an illness beginning with a lump in the left scrotum, which enlarged and finally ruptured externally. There was a mass the size of an olive in the upper portion of the epididymis. The ulceration showed a decidedly indurated border. Internal antisyphilitic treatment brought the lesion under control, with complete healing in two months' time.

7. In addition to the references already given, the following will be found of interest:
Matzenauer, Rudolph: Lehrbuch der venerischen Erkrankungen, Wien, M. Perles, 1904, Part 1, p. 209.
Hutchinson, Jonathan: Syphilis, Philadelphia, Lea Brothers & Co., 1785, p. 270.

Two other cases observed were reported by Dr. Wright.

COMMENT

1. Syphilitic involvement of the epididymis is not an extremely rare occurrence, and will be more frequently found, if looked for.
2. Bilateral involvement is unusual.
3. The more common type is the chronic diffuse interstitial type.
4. Some cases of hydrocele are due to syphilis.
5. All patients presenting themselves for disease of the scrotal contents should be examined for syphilis.
6. The diseased portion is not necessarily confined to the upper pole, the entire epididymis being frequently involved.

RAGWEED DERMATITIS *

RICHARD L. SUTTON, M.D.
KANSAS CITY, MO.

The important part played by anaphylaxis in the causation of various eruptions has long been recognized. In a paper dealing with drug exanthems in relation to anaphylaxis, Cole[1] includes a brief but comprehensive review of the literature of the subject, and defines anaphylaxis as "a state of hypersusceptibility of the organism to foreign substances, which is brought about by the introduction of certain foreign proteins and their cleavage products."

The incubation period of sensitization varies in different species of animals from six to twenty-one days; and is shorter after intravenous than after subcutaneous injection. After an animal has once become sensitized, the hypersusceptibility persists almost indefinitely, and as Rosenau and Anderson[2] have demonstrated, may be transmitted from a mother to her offspring.

CAUSE OF ANAPHYLAXIS

Cooke[3] summarizes as follows: A foreign protein, not in itself toxic, gains entrance into the circulation for the first time. It stimulates the production of specific antibodies which previously did not exist. More antibodies, which may or may not be enzymes, are produced by certain cells of the body and seem to be intimately associated with the cells which produce them. If enough time is allowed for a sufficient number of antibodies to accumulate, and a second dose of the same protein is then introduced, the antibodies react with the protein, splitting it into toxic fragments, which in turn injure the body cells, and give rise to anaphylaxis. If, on the other hand, an excess of antibodies has been produced and these are free in the blood stream, they combine with the foreign protein and prevent it from reacting with the body cells, just as antitoxin neutralizes toxin. In other words:

When antibodies are absent or few in number, we have the nonsensitive state; when numerous and attached to body cells, we have the sensitive or anaphylactic state; and when in excess, with many unattached to body cells, we have the immune state. Anaphylaxis and immunity are the same in principle, differing only quantitatively.

Danysz[4] calls attention to the fact that certain symptoms are a result of anaphylaxis induced by microbes, living or dead, or their products, a fact which has also been emphasized by Duke,[5] Major[6] and others. Sensitization may be single or multiple. Cooke found multiple sensitization in more than 50 per cent. of his cases.

Moschowitz[7] calls attention to conditions that must exist in order to bring about a state of hypersensitization:

1. There must be previous susceptibility, which may be congenital or acquired.
2. The reaction is specific.
3. The reaction can be obtained by mouth, as well as by injection; also by cutaneous inoculation, such as rubbing the offending substance into an abraded surface.
4. Acquired susceptibility can be transferred by heredity to posterity.

The constitutional symptoms are respiratory disturbance, dyspnea, hyperemic and urticarial skin eruptions, and similar toxic phenomena.

Many if not all skin conditions thus far considered as anaphylactic are associated with eosinophilia.

Immediately following anaphylactic shock and repeated injections of antigen in small doses, there is a state of immunity to anaphylactic shock from further injections of the same antigen. This is called anti-anaphylaxis; it is absolute, though only temporary; thus differing from immunity (Strickler[8]). This method of desensitization is at times employed as a therapeutic measure and, occasionally, with a certain degree of success.

Chandler Walker,[9] in an extremely valuable paper on the causation of eczema, urticaria and angioneurotic edema, concludes that the proteins of horse dandruff, ragweed, and timothy pollens, may cause eczema in predisposed persons, both from external exposure and from internal injection.

Eczematous patients tolerate very small doses of the offending protein, and the eczema seems to improve; but a slight increase above this small amount makes the eczema worse. Therefore, desensitization for eczema, if such is possible, must be a very slow and cautious process, even more than in asthma.

Charles J. White[10] of Boston was one of the first, if not the first, to call attention to anaphylaxis as a factor in the causation of some cases of infantile eczema; and his efforts to popularize cutaneous tests for the detection of the various offending proteins have been of great educational value.

Ayres[11] has recently published an instructive paper on the value of cutaneous tests in unearthing the causative factors in various disorders probably developing as a result of anaphylaxis.

SKIN REACTIONS

Kolmer[12] thus summarizes the various skin reactions:

1. The true, or specific, anaphylactic reaction, due to the interaction in the skin of specific protein antigen and specific antibody.

* Read before the Section on Dermatology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

1. Cole: Cleveland M. J. **10**: 442, 1911.
2. Rosenau and Anderson: Bulls. 30 and 45, U. S. P. H. S., April, 1907, and June, 1908.
3. Cooke: Med. Clin. of N. America **1**: 721, 1917.
4. Danysz: Presse méd. **26**: 367, 1918.
5. Duke, W. W.: Oral Sepsis in Relation to Systemic Disease, St. Louis, C. V. Mosby Company, 1918.
6. Major: Deutsch. Arch. f. klin. Med. **114**: 248, 1914.
7. Moschowitz: New York M. J. **93**: 15, 1911.
8. Strickler: New York M. J. **104**: 198, 1916.
9. Walker, I. C.: Causation of Eczema, Urticaria and Angioneurotic Edema, J. A. M. A. **70**: 897 (March 23) 1918.
10. White, C. J.: Two Modern Methods to Be Employed in the Treatment of Chronic Eczema, J. A. M. A. **68**: 81 (Jan. 13) 1917; J. Cutan. Dis. **34**: 57 (Feb. 16) 1916.
11. Ayres, S., Jr.: Boston M. & S. J. **178**: 697 (May 23) 1918.
12. Kolmer, J. A.: Bull. Johns Hopkins Hosp. **28**: 163 (May 17) 1917.

2. The pseudospecific or nonspecific protein reaction, due to the interaction in the skin of general protein substances and nonspecific proteolysins.

3. The traumatic reaction consequent on the operation, or on the irritant qualities of such substances as preformed bacterial toxins and various preservatives, as phenol and tricresol contained in the injected material.

The intradermal method, which is the most delicate, but also more likely to yield traumatic and nonspecific reactions.

Strickler,[13] and Strickler and Goldberg[14] have adopted these standards as to what constitutes a positive cutaneous reaction:

1. Persistence of the lesions for more than twenty-four hours after the injection. (They fix the standard at forty-eight hours.)
2. The presence of a distinct papule.
3. The presence of a distinct erythema.
4. The presence of tenderness at the point of injection.

Blackfan[15] thinks there is no justification for the forty-eight hour standard, and believes that less time would suffice. Judging from my own experience, I believe a twenty-four hour period praticable.

In a final review of the subject of anaphylactic operations in general, Strickler and Goldberg conclude that:

> Just as a syphilitic subject with a positive Wassermann reaction may develop a skin affection that is unrelated to his systemic infection, so a patient with a positive food anaphylactic reaction may develop a cutaneous affection due to other factors than his diet.

As Ayres has said:

> The exact mechanism by which the multiple local edema characteristic of anaphylaxis is produced is not positively known. Heidenhain has suggested local injury, with increased permeability of the vessel walls; Wright, a deficiency of calcium salts in the blood; and Martin Fischer, a localized increase of acid products.

All three of the foregoing explanations are open to criticism; although each is supported by well recognized facts.

While all of us are familiar with the eruptions which develop occasionally as a result of anaphylaxis following the ingestion of various articles of food, and many of us recognize the part played by bacterial products in the causation of certain diseases of the skin, such as infectious eczematoid dermatitis and kindred disorders, I do not believe that the cutaneous phenomena which occur as a result of the absorption of foreign proteins through the respiratory tract and possibly through the skin itself have received the attention and study that they deserve.

About seven years ago, I had an opportunity to study a case of goldenrod dermatitis, with an associated asthmatic disorder, due to the same agent. The patient was a little girl, and direct exposure to even small amounts of goldenrod pollen invariably and promptly produced a severe dermatitis, which quickly became generalized, and an asthma of varying degree, which persisted for twenty-four hours or more and then gradually subsided. Examples of dermatitis from this source are rare, however, probably owing to the fact that the flower is insect pollinated, and direct inhalation or direct contact must necessarily precede absorption.

Fig. 1.—Common ragweed (Ambrosia elatior), principal cause of hay-fever in the Eastern and Southern states. (From "Illustrated Flora of North America," by Britton and Brown—after Scheppegrell.)

REPORT OF CASES

Case 1.—My first case of ragweed dermatitis was seen in a Kansas stockman, aged 48, referred to me by Dr. W. C. Lathrop of Norton.

The patient's hypersusceptibility to ragweed pollen had existed about eight years; and, during an attack, the manifestations were almost wholly confined to the integument. Unlike some victims of the disorder, he had never suffered from hay-fever; and, so far as he knew, pollens other than those of ragweed did not affect his skin. The disease recurred annually, during August and September, and each time persisted for two or three months.

The face, chest, hands and forearms were the parts principally affected, although the trunk and the lower limbs occasionally were involved. Exposure to the dried weeds, in hay mows and stacks, during the winter and spring months, invariably brought on an attack.

The cutaneous eruption which developed as a result of these brief periods of exposure was comparatively mild, however, and generally subsided quite promptly under the influence of soothing, astringent lotions, as aqueous solutions of aluminum acetate. The seasonal exacerbations were much more serious, however, and practically incapacitated the patient for many kinds of farm work.

The cutaneous lesions varied in form from macules to bullae, the majority being macular, maculopapular and vesicular in character. Itching was invariably present, together with more or less burning and stinging. Free exposure to pollen would invariably precipitate an attack in from one to three hours, and twelve hours later the patient's face would be so badly swollen that he could hardly see. In this instance, no specific vaccines were employed.

Case 2.—My second patient, also a farmer, referred to me by Dr. Frank McDermand, of Kansas City, had a clinical history which almost duplicated the one recorded above. In order that the affection might be the more easily investigated, I asked my friend, Dr. W. W. Duke, to make an exhaustive laboratory study of the case. This was done, and it was found that the patient possessed a marked hypersusceptibility to the pollen of common ragweed *(Ambrosia elatior)*, and a slight susceptibility to the pollen of giant ragweed *(Ambrosia*

13. Strickler, A.: New York M. J. 104: 198 (July 29) 1916.
14. Strickler, A., and Goldberg, J. M.: Anaphylaxis, J. A. M. A. 66: 249 (Jan. 22) 1916.
15. Blackfan, K. D.: Am. J. Dis. Child 11: 441 (June 16) 1916.

trifida). There was no reaction to timothy, goldenrod or cottonwood.

The use of ragweed pollen vaccine, in gradually increased dosage, afforded much relief; and at this time, after almost two years of interrupted treatment, the attacks are so infrequent in number and so mild in character that the patient is inconvenienced but little by them.

CASE 3.—In my third case, which occurred in a farmer, aged 43, referred to me by Dr. Edward Asbell, of Kansas City, there was a history of mild annual attacks of "rose fever," extending over a period of eight or ten years; but during the six years that immediately preceded the date of my examination, the patient had been entirely free from the nasal disturbance. The cutaneous disorder, which was characterized by the presence of irregularly distributed but roughly symmetrical collections of macules, papules and vesicles, involved the face, chest, trunk and forearms, and had at first appeared only during the late summer months. For the past two years, however, the patient had at no time been entirely free from it.

In view of the histories of the two preceding cases, it was a comparatively easy matter to discover, and prove, the nature of the offending agent. The hypersusceptibility in this instance was very great, so much so that the simple inhalation of a small amount of ragweed dust, contained in a wide-mouthed bottle, was sufficient to bring on a severe exacerbation of the cutaneous disorder. The ingestion of capsules containing pollen and particles of leaves had no appreciable effect on the patient's skin. As in Case 2, *Ambrosia elatior* was the offender.

Treatment with pollen vaccine was instituted, but it was not possible for the paticnt to report regularly for the injections, and they were discontinued altogether before any material benefit was derived from their use.

CASE 4.—In my fourth case, which also occurred in a farmer, referred to me through the courtesy of Dr. William J. Frick of Kansas City, the disorder was of five years' duration, and the patient, who was a very observant individual, had already discovered its cause. Unfortunately, it was not practical for him to adopt so radical a prophylactic measure as the abandonment of his occupation, and he had tried a large number of local and internal remedies without securing relief.

Fig. 2.—Giant ragweed (Ambrosia trifida). Replaces the common ragweed in most parts of the Eastern and Southern states and is also found in some sections of Nebraska, Colorado and New Mexico. (From "Illustrated Flora of North America," by Britton and Brown, after Scheppegrell.)

Owing to the ease with which the remedy could be procured, Mulford's fall pollen extract was tried in this case. The result of the treatment was very satisfactory, relief from the burning and itching being almost immediate. After a series of twelve injections, in gradually increasing doses, the patient temporarily discontinued treatment. At that time, he could safely handle hay containing considerable amounts of ragweed, and, at present, he believes that he is cured. He has promised to report again later in the year, however, after the "ragweed season" is over, and the permanence of the cure can then be ascertained.

OFFENDING PLANTS

The plants that cause so-called "ragweed dermatitis" are probably the same as those causing hay-fever. The principal offenders, as Lowdermilk,[16] Scheppegrell[17] and others have demonstrated, are the common ragweed, and the giant ragweed, with mugwort (*Artemisia heterophylla*), western ragweed (*Ambrosia psilostachya*) and bur marsh elder (*Iva xanthifolia*) in the lesser rôles.

As Scheppegrell has said, the responsibility of the noxious plants for hay-fever is dependent, first, on the proximity of the plants, and secondly, on the size of the pollen, which has a marked effect on its buoyancy. The pollen of the common ragweed is only 15 microns in diameter, and its buoyancy is so great that a wind velocity of 20 miles will carry it over large areas of territory.

PREPARATION OF POLLEN

The preparation of the pollen for dermal tests is a comparatively simple matter. Duke advises that a known amount of pollen be placed in a small, sterile mortar, together with a drop or two of sterile water. The pollen is then thoroughly triturated, being ground repeatedly until, when examined under a microscope, it is found that the grains are completely broken up. The mixture is then diluted with tenth normal salt solution, to which 10 per cent. of glycerin and 0.5 per cent. of phenol (carbolic acid) have been added, so that 1 c.c. of the mixture contains 10 mg. of pollen.

The same preparation may be used for treatment purposes; but if this is done, the solution should again be diluted serially, in order to guard against possible overdosage.

The initial dose should be small, not over from 0.0001 to 0.0003 mg. of pollen protein. Afterward, the dose may be increased in size, depending on the reaction secured. A safe plan is to inject the vaccine every third or fifth day, increasing the amount injected from 10 to 30 per cent. each time. Occasionally, the ensuing reaction is very severe and even violent; and it is wise always to have conveniently at hand atropin and epinephrin solutions, in case they are needed. The local treatment is that of an eczema.

Since this paper was written, Hannah[18] of Sandersville, Ga., has published a report of a very interesting case of ragweed dermatitis of five years' duration, in a woman, aged 49. A specific diagnosis was made by means of intradermic tests, and prompt relief followed the hypodermatic use of pollen extract.

1034 Rialto Building.

16. Lowdermilk, R. C.: Hay-Fever, J. A. M. A. **63**: 141 (July 11) 1914.
17. Scheppegrell: Pub. Health Rep. **31**: 1907 (July 21) 1916; ibid., **32**: 1135 (July 20) 1917.
18. Hannah, L.: Ragweed Dermatitis, J. A. M. A. **73**: 853 (March 22) 1919.

ABSTRACT OF DISCUSSION

Dr. C. A. Simpson, Washington, D. C.: I enjoyed Dr. Sutton's case report very much. It is unfortunate that he has not endeavored to make a serious study of the subject of anaphylaxis, which would have prevented his confusing the term with skin sensitization. The two terms while superficially similar, in reality are quite different. The reaction of anaphylaxis is better understood, and its production requires certain definite specific factors. It must be produced by a protein in an animal or man who has become previously sensitized to that specific protein. The authorities, serologists and pathologists, not dermatologists, claim that so far no substance other than a protein can produce the anaphylactic phenomena. Ford, the only serious contender of this general opinion, was unable to duplicate his results with his so-called glucosid, von Audlung later showing that he was not working with a pure glucosid, but a compound. For Dr. Sutton to get a skin reaction with ragweed ground up in the menstruum he employed may mean almost anything. The requirements of true anaphylaxis are far from complied with, in fact, the reaction is simply an example of skin sensitization such as we see following the injection of arsphenamin or the ingestion of pure chemicals (not proteins), such as quinin and iodin. In my work with the primrose plant I at least made an effort to discover the irritating elements of the plant. I isolated a protein with which I sought to (1) produce a skin reaction in a susceptible patient, (2) actively sensitize a guinea pig, (3) produce an anaphylactic shock in two sets of pigs, one previously sensitized (?) by the patient's serum, the other sensitized (?) by a previous injection of the same primrose protein. All of these protein tests were negative. When an alcoholic extract of the plant (which had precipitated out all proteins) gave an intense skin reaction, I was doubly sure that protein had nothing to do with the skin irritability. In a further analysis of the plant I obtained two compounds, both without a protein content, one an oleoresinous mixture probably containing an acid, the other a crude glucosid, both of which produced the characteristic skin reaction where the protein failed. It is unfortunate that Dr. Sutton, at this late day, should confuse the two entirely different reactions. A casual investigation of the literature in The Journal of the American Medical Association might right his rather hasty and entirely incorrect deductions.

Dr. J. H. Blaisdell, Boston: I recently had a patient, a boy, 6 years of age, who reacted to ragweed in the usual way and in addition was very sensitive to the external application of dog dandruff. Every time he played with a neighbor's dog he suffered from an acute attack of asthma and eczema of the parts that had come in contact with the animal. Another case was that of a lawyer who was susceptible to horse dandruff. He was so sensitive that if any one came into his office in the winter time and shook a fur overcoat after they had been driving a horse he would have an acute attack of asthma. Harnessing or currying a horse would produce asthma and a dermatitis of the parts exposed to the dandruff.

Dr. Everett S. Lain, Oklahoma City: I have looked into this subject for several years and have noticed a dermatitis which I had thought was produced by ragweed. I have, however, attributed these cases more to the direct contact or friction, inoculation by the hairs of the plant itself, than I have to the pollen. I do not doubt the possibility of plant pollen also producing a dermatitis when it comes in contact with a susceptible portion of the skin. I have noted several cases of ragweed dermatitis on the legs of children from wading through the weeds on the way to and from school. If there is an abrasion on the skin they develop a dermatitis very easily. The subject of plant dermatitis is growing larger all the time and I think we should take careful notice of the various plants that produce it because the farmers and the city people who take their vacations in the rural districts are anxious to know about these plants and how to avoid them. Poisonous plants are classified by many botanists, though they classify them more especially as regards internal toxicity, produced accidentally or otherwise. Of their poisonous substances very little is known or written. Take, for instance, the large nightshade group—nearly all members of this family are toxic when administered internally and a large number will produce a dermatitis when applied externally. I believe Dr. Sutton will find that not only is the ragweed toxic by means of the pollen which floats, but also by means of the fine plant hairs which perhaps prick the skin and deposit a poisonous glucosid.

Dr. William Allen Pusey, Chicago: I wish to defend Dr. Sutton's use of the term anaphylaxis. We all know that the term anaphylaxis was applied primarily to reactions from protein sensitization. We also know now that other reactions of the same character as these protein reactions occur from other substances. It is all very well to be purists in the use of language, but you cannot readily confine the use of a word to a phenomenon which is produced by one substance and deny its use to exactly the same phenomenon produced by another substance. For example, if a man has a reaction which we call anaphylactic to an infinitesimal amount of egg white, how are we going to prevent the application of this term to a clinically identical reaction to an infinitesimal dose of quinin in a quinin-sensitized person? Etymologically there is no objection to this broadening of its meaning; in fact, I believe there are many reasons for it.

Dr. Harold N. Cole, Cleveland: I would like to raise the same question as Dr. Pusey did in regard to anaphylaxis. They used the term first in relation to proteins. It has been shown by Ford that the same thing can be obtained from glucosids and I think the same thing may apply to asthma. When you get these symptoms I do not see why it should not be spoken of as anaphylaxis.

Dr. Fred Wise, New York: There is one point which I think will interest the section. Yesterday Dr. Schamberg told us that he produced desensitization to the reaction from poison ivy by the internal administration of rhus toxicodendron.

Dr. Jay Frank Schamberg, Philadelphia: For several years I have been using the tincture of rhus toxicodendron to desensitize patients susceptible to ivy poisoning, and so far I have never had a failure. It is perfectly possible to keep the patients free from ivy dermatitis. I use 1 c.c. of the rhus toxicodendron with 10 c.c. of alcohol with some fluid vehicle sufficient to make 100 c.c. I begin the treatment with one drop well diluted after the first meal, two drops after the second meal, and so on, until 20 drops are reached, and then for the purpose of simplifying the treatment I give one teaspoonful, well diluted, once a day through the ivy season. The immunity seems to last for about one month after the last dose has been taken. It is very simple, does not disturb the digestion and patients are able to keep themselves free from ivy poisoning in this way. I made brief mention of this at the session of the American Medical Association in Detroit, 1916, and since then I have had many cases and not one that was not protected. One patient was a young girl who was usually confined to bed for about three months of each year because she could not walk down a lane where ivy grew without becoming attacked. I have no doubt that other forms of dermatitis from poisonous plants could be prevented in the same way. I believe that Dr. Pusey will, on recollection, agree with me that patients who are susceptible to ivy poisoning do, as a matter of fact, have certain periods of immunity. Patients do not have recurring attacks without a number of weeks of relative or complete freedom. I think it is quite well established that persons susceptible to ivy poisoning may be attacked with ivy dermatitis without actual contact with the plant. The effect of the treatment to which I have referred is, after all, not to be prejudged by theoretical conditions, but by actual results obtained.

Dr. William Allen Pusey, Chicago: The proposition to produce immunity to poison ivy by the administration of tincture of rhus arouses in my mind the question why we do not see acquired immunity to poison ivy from previous attacks. Patients who are sensitive to the plant have attacks so readily on exposure that the duration of immunity produced by an attack must be very short, if it exists at all. If the attacks themselves do not produce immunity, how

much success are we going to have in producing immunity by the ingestion of a tincture of the drug?

DR. H. J. PERRY, Boston: I wonder if the members of the section have heard of immunizing patients by feeding them the leaves of the poison ivy. Some one called my attention to this method of feeding a leaf to an exposed or already poisoned patient every day, and said he had been able to protect them by this method and bring about a rapid cure of all symptoms.

DR. J. FRANK SCHAMBERG, Philadelphia: I believe that Dr. Pusey infers that patients do not have a period of immunity; but they do at times have a period of immunity; otherwise, they would be having successive attacks of ivy poisoning, but within two or three months they will again become susceptible. As regards the question of having an attack of ivy poisoning without coming in contact with the ivy, that has been substantiated. After all, it is not a matter of theory but of practice.

DR. RICHARD L. SUTTON, Kansas City, Mo.: I might follow out Dr. Simpson's argument "to its ultimate termination," but a rose by any other name smells just as sweet, and if he does not care to call it anaphylaxis, he can call it anything he pleases. With reference to Dr. Blaisdell's case of sensitization to horse dandruff, several well authenticated instances of anaphylaxis due to this substance are now on record. Dr. Duke has reported a very unusual example in which the patient, a young woman, was sensitized to the protein thrown off by cat fur. A friend of the patient once thought he would play a joke on her, and brought near her a small kitten, concealed in the pocket of his coat. The ensuing attack was so severe that a physician had to be summoned and an injection of epinephrin given to relieve the attack. So far as ragweed pollen in particular is concerned, I think the cutaneous reaction following the intradermal injection of even very minute amounts of the substance is amply sufficient to establish the relationship. When a severe attack of asthma, with an associated and clinically typical, dermatitis, invariably develops in certain individuals as a result of the injection of even so small an amount as 0.001 mg. of ragweed pollen, then if we are not dealing with anaphylaxis the condition is an utter stranger to me.

THE FUNDAMENTAL PHYSIOLOGIC REACTION IN ANAPHYLACTIC AND PEPTONE SHOCK

PRELIMINARY REPORT *

J. P. SIMONDS, M.D.
CHICAGO

The causes of the remarkable differences in the manifestations of anaphylactic and peptone shock in different animals has been the subject of no little speculation. In the dog, anaphylactic and peptone shock are characterized by a marked immediate fall in arterial blood pressure, a simultaneous fall in venous (external jugular-superior vena cava) pressure, a rise in portal pressure, an increase in the volume of the liver, and, at least in peptone shock, an increased flow of lymph from the thoracic duct. It is evident, therefore, that in the dog, the flow of blood through the liver is greatly impeded in these conditions. The exact location of the obstruction has not heretofore been determined.

In reasoning from these facts it appeared that the only possible location for an obstruction that would explain all of them was not the extrahepatic splanchnic area, nor the portal vein and its intrahepatic branches, nor the intralobular capillaries, but the hepatic vein and its branches. It has been shown that a fall in blood pressure such as is seen in the dog is not characteristic of anaphylactic shock in the guinea-pig (Auer and Lewis) or in the rabbit (Auer) or in peptone shock in the guinea-pig (Hirschfelder). In searching for a reason for this difference, a study has been made of the comparative anatomy of the hepatic vein in different animals. It has been found that the hepatic vein in dogs differs from that of the guinea-pig, rabbit and other herbivorous animals examined, in the relatively enormous amount of smooth muscle which is present in its walls. A report of the results of this study, made in collaboration with Dr. L. B. Arey, will be published later.

It appears, therefore, that the fundamental physiologic reaction in anaphylactic and peptone shock in dogs is a spasm of the smooth muscle in the walls of the hepatic vein and its branches. Experiments which make this evident will be reported later.

This interpretation of the physiologic mechanism of anaphylactic and peptone shock has certain practical bearings which will also be made the subjects of forthcoming publications:

1. It is known that in the guinea-pig the finer bronchioles are "practically nothing but muscular tubes" (Oppel, cited by Auer and Lewis). The characteristic clinical manifestation of these conditions in this animal is a violent dyspnea in which it can get air into its lungs but is unable to get it out. The dog and certain other animals have hepatic veins supplied with exceptionally large amounts of smooth muscle. The manifestations of anaphylactic and peptone shock in dogs have just been described. It seems possible, therefore, that the basis for these differences in the reaction of different animals in shock of this kind is an anatomic difference in the distribution of smooth muscle in the body. A similar anatomic anomaly may also account for certain types of asthma and serum reactions in human beings.

2. This observation may also bring peptone shock into relation with surgical and wound shock. It is only necessary to recall that among the theories advanced by various authors who have studied shock under war conditions is one which makes the absorption of the soluble products of damaged muscle in wounds responsible for the condition. Furthermore, it is obvious that any prolonged spasm of the hepatic vein and its branches, such as occurs in peptone shock in the dog, will lead to the same condition in the general circulation, or at least in the splanchnic area, of sequestration of blood in the venules and capillaries as was observed by Jackson and Janeway in the shock produced by them by the mechanical obstruction of the vena cava for limited periods of time.

3. It is evident, also, that in interpreting the results of experiments on dogs, especially those which have to do with blood pressures, this peculiarity of the hepatic vein must be taken into consideration. This will be discussed more fully in a paper on the interpretation of the blood pressure curve following injections of epinephrin (adrenalin).

* From the Department of Pathology, Northwestern University Medical School.

Cancer Mortality.—During the great war the United States lost about 80,000 soldiers. During the same two years 180,000 people died of cancer in this country. Cancer is now killing one out of every ten persons over forty years of age.—American Society for Control of Cancer.

THE METABOLIC GRADIENT UNDERLYING PERISTALSIS *

WALTER C. ALVAREZ, M.D.
SAN FRANCISCO

Why does food normally go in one direction down the intestine? Why sometimes does it go slowly and haltingly, giving rise to symptoms of indigestion? Why sometimes does it turn around and come back through the mouth? These questions are fundamental; and the future of gastro-enterology as an exact science depends on the fulness with which they are answered. Until we obtain such physiologic knowledge we must face the fact that in practice we are trying to repair a machine, the normal structure and workings of which are largely unknown to us. Naturally the results are often unsatisfactory, just as they would be if we were trying to repair broken-down adding machines or wireless telephones.

What could the heart specialist learn about the arrhythmias until Gaskell, McWilliam, His, Keith, Lewis and others showed him where the beat normally arises and how it is transmitted from sinus to ventricle? Given that information, the student of heart pathology became inspired and rejuvenated; his knowledge advanced by leaps and bounds; and his textbooks had to be rewritten and remodeled. We should take hope from this good fortune which has come to our confrères and should seize on the methods of study which have been so productive in their hands. With these I believe we can advance to similar triumphs over the baffling problems in our own chosen field. We should study the gastro-intestinal tract in embryos and in lower and simpler forms of life; we should look for structural and metabolic differences in the neuromuscular apparatus in different parts of the tract, and we should study minutely the reactions of the muscular coat—its rhythmicity, irritability, conductivity, reaction to drugs, etc.—in different regions. As clinicians, we must get over the habit of thinking in terms of plumbing and rigid tubes held in one position. We must think instead of a muscular tube which has to contract in a coordinated way if material within it is to be pushed for many feet in one direction or the other.

Six years ago I showed that there is a very definite gradient of rhythmicity in the muscle of the small intestine from duodenum to ileum[1]. It seemed to me then that this gradient of rhythmicity or perhaps some underlying gradient of tone might be the essential factor in determining the direction of peristalsis. This gradient might conceivedly be reversed by any distention, irritation or inflammation which would increase the tone and activity of the lower parts of the tract to a level above that maintained by the upper parts. In two papers[2] I reviewed much of the literature and showed how easily a great many clinical and roentgenologic observations can be explained on the basis of such a theory.

I cannot see now why there should be any great difficulty in accepting this idea of a gradient of forces as a working hypothesis in the study of peristalsis. Wherever we find movement in this world we find a gradation of forces. Thus, water flowing in a ditch follows a gradient of gravity, i. e., the pressure on any one drop is greater on the upstream than on the downstream side. Electricity in a wire follows a gradient of potential or voltage; in a battery it follows a gradient of chemical activity, flowing from regions in which oxidation predominates to regions in which reduction predominates. The impulse in the heart follows a gradient of rhythmicity; and according to Tashiro[3] the impulses in nerves follow gradients of oxidation. In the stomach and intestine the contents move from regions of high rhythmicity, high irritability and high tone to regions of low rhythmicity, low irritability and low tone.

During the last two years I have been able to show that there is a definite gradient of oxidation and carbon dioxid production in the intestinal wall, underlying and probably giving rise to the other gradients of rhythmicity, tone, etc.[4]. In other words, the chemical processes of life go on at a faster rate in the duodenum than in the ileum or colon. Theoretically, if we should speed up these processes in the duodenum we might steepen the gradient and cause the food to go faster through the bowel; if we should speed them up in the ileum so that they would be faster than those in the duodenum, we might reverse the gradient and stop the downward progress of food. Recent study has shown that the local life processes are greatly speeded up by inflammation[5], so it may be that the hypermotility actually seen in many cases of duodenal ulcer and cholecystitis and the hypomotility with appendicitis are due to changes in the metabolic gradient brought about by these lesions.

Galvanometric studies of bruised tissues suggest strongly that their metabolic rates are increased by the trauma[6]. If this be true in the intestine we can easily explain the fact that its contents cannot approach or pass through segments which have recently been pinched in hernial rings or maltreated at operations[7]. A local increase in the metabolic rate would make the gradient uphill in the section of bowel just orad to the lesion.

There is yet another and perhaps an even more important way in which the gradient may be reversed. Child[8] has shown repeatedly that tissues with a fast rate of oxidation are more susceptible to the effects of low concentrations of certain poisons, such as potassium cyanid, than are tissues with slow rates. If two lots of small planarian worms of different ages are put into a weak solution of potassium cyanid, the younger ones, with the faster metabolic rate, die first. Similarly, if children and old men were to be put into a room full of ether vapor, the children would probably all go to sleep first. Child showed that in some of the lower forms of life which have rows of swimming plates along their sides, the direction of the beat can be reversed by potassium cyanid because the pace-making region suffers most from the effects of the drug. Using excised segments from different parts

* Read before the Section on Gastro-Enterology and Proctology at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

* From the George Williams Hooper Foundation for Medical Research, University of California Medical School.

1. Alvarez, W. C.: Am. J. Physiol. **35**: 177 (Sept.) 1914; ibid. **37**: 267 (May) 1915.

2. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, J. A. M. A. **65**: 388 (July 31) 1915; The Syndrome of Mild Reverse Peristalsis: ibid. **69**: 2018 (Dec. 15) 1917.

3. Tashiro, Shiro: A Chemical Sign of Life (Irritability), Chicago, University of Chicago Press, 1917.

4. Alvarez, W. C. and Starkweather, E.: Am. J. Physiol. **46**: 186 (June) 1918; ibid **47**: 60 (Sept.) 1918.

5. Segale, M.: J. Exper. M. **29**: 235 (March) 1919.

6. Hyman, L. H.: Science **48**: 518 (Nov. 22) 1918.

7. Cannon and Murphy: Am. J. M. Sc. **131**: 569, 1906; Alvarez: J. A. M. A. **65**: 392, 1915.

8. Child, C. M.: Am. J. Physiol. **43**: 87 (April) 1917; Senescence and Rejuvenescence, Chicago, 1915.

of the bowel, all beating rhythmically together in the same beaker of Locke's solution, I had no difficulty in showing that the duodenum is much more sensitive to potassium cyanid and to the lack of oxygen than is the ileum. Time and again while working in the laboratory I have been impressed by the great sensitiveness of the duodenum and of the pace-making region in the stomach to trauma of all kinds[9]. Compared with them, the ileum and the pyloric antrum are tough and hardy. I have also been impressed with the fact that the gradients of rhythmicity, latent period and metabolism are abnormal in sick animals. Just as we should expect, the duodenum and jejunum seem to suffer more from the effects of the toxins than do the ileum and colon. The distempered dogs and snuffling cats generally refused food. When it was put in their stomachs it remained there until it was vomited. Cannon has commented on the remarkable gastric stasis seen in distempered dogs. Similarly, food may remain for hours in the stomachs of people with tuberculosis and other intoxications. There I feel sure the stagnation is not always due to a failure in peristalsis; the waves may be seen traveling regularly over the stomach, but they do not force the contents through the pylorus. Something must be wrong with the gradient. I believe it has been altered by an unequal effect of the toxins on the muscle at the two ends of the organ. How simple this explanation is as compared with those which drag in a cumbersome and so far quite undemonstrated mechanism of nerves and internal secretions!

AN ILLUSTRATIVE SIMILE

Perhaps I can best express my ideas of what goes on in the intestine by means of the following simile: Let us imagine a game of push-ball played by a long line of men who have been graded according to their metabolic rates. At one end they are young, wide-awake and active; at the other end they are old and lethargic. These men represent the muscle fibers along the intestine. The ball is started by the first young man, who tries to force it past the second. The second resists but is soon overcome, owing to the greater activity and aggressiveness of number one. As soon as the ball passes number two, he joins with number one in trying to push it past three and four. Once past them, one and two rest while three and four push it past five and six, and so it goes. The men in the first third of the line (jejunum) play incessantly so long as the ball is near them, and they soon force it down among the old men. These play only occasionally, often letting the ball lie quiet while they sit down about it to rest. New balls are started down the line from time to time, and sometimes the old men will have three or four on their hands at once. Ordinarily they are roused to get rid of one or two of these when they see that a new one has started down (ileocolic reflex and defecation).

Usually the ball moves in one direction and there is small likelihood that the old men with their intermittent efforts will ever overcome the youths. But one day some of the old men get drunk, and under the influence of liquor they fight so fast and furiously that the others cannot push the ball anywhere near the lower goal. On another occasion some of the old men are injured and beg their comrades to relieve them for a while from the trouble of handling the ball. Again these old men are stimulated to fight back so desperately that some of the balls are even thrown out the way they entered. On still another occasion a cloud of poison gas is liberated over them. All are weakened and made ill, but the young men who breathe faster are more susceptible to the poison and suffer more from the lack of proper air than do the old men. Until they recover, the game is slower; the old men are more active than the young ones and the ball is sometimes sent back to the original starting place.

A change in the play might be brought about also by making the balls unpleasant or painful to handle. Let us suppose that they have been filled with pepper or stuffed full of sharp spikes. The first one or two to start down the line would probably be rushed through so that the players could get rid of them as rapidly as possible. The men would then be so irritated by this annoyance that they would probably throw back the next few balls that were offered them (diarrhea and vomiting).

If the game was being played on the side of a hill it would not make much difference whether the young men were above or below the old. The position of the line would not be the important thing. The essential factor determining the movements of the ball would be the gradient of activity in the line of players. If the men were to play in a lane between two board fences, a slowing of the progress of the ball would not mean necessarily that the lane had been narrowed or closed. As likely as not some of the players might be fighting back too hard, or those above might not be pushing down as they should.

I think most of my readers will recognize the bearings of this simile on the problems of gastro-enterology. Some may be surprised at the idea of one part of the bowel resisting the propulsive efforts of another part above, so I will say that I have watched this conflict take place so often, particularly in the rabbit's bowel, that I feel sure that it is a big factor in the regulation of diastalsis.[10] It is well known that it is this type of bowel action that keeps the food from pouring out of the stomach after pyloroplasties and gastrojejunostomies[11].

CONCLUSION

I wish to point out briefly some of the ways in which these studies may throw light on the pharmacology of the heart and on the functional disturbances of that organ seen in asthenic states and during convalescence from acute infections. Since the heart beat follows a gradient of rhythmicity and almost undoubtedly one of metabolism, we should expect to find certain drugs and disease toxins reversing it just as they reverse other metabolic gradients. A review of the literature shows considerable evidence in favor of such a view. Thus chloroform will paralyze the auricle in concentrations which will only slightly inhibit the ventricle[12]; digitalis has a similar tendency, and I believe we must begin to ask ourselves whether this action may not flatten or reverse the gradient. Such changes might account for some of the retarding in conduction and also for the tendency to heart block and a reversal of the beat. Similar

9. Alvarez, W. C.: Am. J. Physiol. **35**: 178, 179 (Sept.) 1914; ibid. **42**: 426, 430, 445 (Feb.) 1917; ibid. **45**: 346, 348 (March) 1918; ibid. **46**: 189 (June) 1918; **47**: 65 (Sept.) 1918.

10. Alvarez, W. C.: Am. J. Physiol. **27**: 279 (May) 1911.

11. Cannon and Blake: Ann. Surg. **41**: 708, 1905. Dagnew, W. F.: Mitt. a. d. Grenzgeb. d. Med. u. Chir. **20**: 179, 1913. Marbaix: La cellue **14**: 283, 1898. Van Gehuchten: La cellule **6**: 277, 1890.

12. Rasche, A.: Ztschr. f. Biol. **58**: 469, 1911.

upsets, with palpitation, nodal rhythm and even transitory blocks may arise through the activity of disease toxins. The disordered heart action and the digestive disturbances seen side by side in people recovering from infections such as influenza may easily be due to the flattening effect of the one poison on the two gradients. I feel hopeful, therefore, that further study of the digestive gradients and of their modification in disease will not only bring rich rewards to those of us interested in gastro-enterology, but will also enable us to repay the heart physiologists and biologists with interest for the loan of their methods and working hypotheses.

ABSTRACT OF DISCUSSION

Dr. Franklin W. White, Boston: We are under great obligation to Dr. Alvarez and to other physiologists who develop these new ideas which are likely to be of so much service later. Alvarez has compared the gastro-intestinal canal to a railroad under the control of a "block system," where delay low down the line regularly holds up the passage of material for several blocks above. My clinical and roentgen-ray observations have shown that delay in emptying the stomach is the exception, not the rule, in lesions of the lower bowel, and that a strong stimulus is needed from the lower bowel to slow the stomach. We made a few simple experiments a year or two ago to test the correctness of this theory. We irritated the cecum in cats with a few drops of mustard oil, injected through a rectal catheter, and we found that one of several things happened: moderate irritation had no effect on the emptying of the stomach; marked irritation caused either (*a*) delay in emptying the stomach up to about twice the normal time or (*b*) hyperperistalsis and rapid emptying of the stomach and whole digestive tract. Intense irritation caused prompt reverse peristalsis in the stomach with vomiting of its whole contents. Similar experiments were made in human beings by giving them a large enema and allowing them to retain it as long as it could be conveniently done, for twenty minutes or one half hour, and watching to see if that would slow the down hill progress of things, that is, the emptying of the stomach. We found, as a matter of fact, that their stomachs continued to empty. We could see the pylorus passing things on at very much the normal rate. Obviously, the effect of this gradient, which is undoubtedly present is not a perfectly simple affair. Its results depend largely on the grade of irritation at the lower end of the canal, and the action of the mechanism is complicated by the contrary results of spasm and hyperperistalsis.

Dr. James T. Case, Battle Creek, Mich.: I am very pleased to hear the interesting and instructive theory advanced by the author of this paper. To the support of this theory I can bring a large series of clinical observations which I have made during the last ten years, especially regarding the point to which an ingested meal will penetrate in the alimentary tract in cases of intestinal obstruction. In the early days of the roentgen-ray examination, when I studied cases of colonic obstruction by means of the barium meal, I found that in my estimate of the exact site of the obstruction I was usually off a foot or more too far up the canal, for I judged the point of obstruction by the farthermost point to which, as far as I could observe, the ingested barium progressed. I did not realize at that time that there is a state of peristaltic unrest in these cases so that the ingesta may at one hour be advanced or withdrawn alternately.

Checking up these estimations by means of the opaque enema soon showed us exactly the point of obstruction. These phenomena could be explained very easily by the theory of peristaltic gradient to which we have just listened. About ten years ago, I called attention to the fact that in colonic obstruction, for instance, the barium ingested by mouth would after entering the colon be found, as a rule, not just proximal to the obstruction, but on the contrary as far away from the obstruction as it was possible to get it. In other words, in obstruction of the sigmoid we would usually find the collection of barium to occur in the cecum, only rarely in the distal colon. I have even known of cases of gangrene of the cecum in sigmoidal carcinomas. We have observed the same thing in the small intestine. The administration of the opaque meal is a valuable means of determining the fact of obstruction, but the farthermost point attained by the barium is usually some feet short of the actual point of obstruction in the bowel. While the essayist's theory seems abundantly confirmed by our barium meal studies, it does not seem to be true regarding gas accumulations occurring throughout the bowel for these are apparently just as marked immediately proximal to the obstruction as in more remote segments of the bowel.

Dr. Nathan Rosewater, Cleveland: Rectal fissures produce a tendency toward constipation, sometimes alternating with diarrhea, because nature finally asserts itself and a forced movement takes place. I found that by giving individuals inclined to seasickness (antiperistalsis) a cathartic, and continuing it for two or three days before embarking, antiperistalsis would not occur. Patients who before that were so inclined to seasickness that they could not stand being on the water could be on it in spite of the greatest storm, while others were sick, even the sailors. By giving them something which would overcome antiperistalsis by hyperperistalsis, if the gradient is sufficiently strong outward or downward, you have no tendency toward antiperistalsis. We have all tried it in numerous ways, with cathartics in cases of nausea, but the treatment must be guided by that principle of overcoming antiperistalsis. Twenty years ago I maintained that headaches, colds, etc., are often due to fecal obstruction, the effect of such stasis on the vasomotor mechanism, demanding greater heart action to overcome the narrowed caliber of the vessels from stasis and drag; it is forced to greater effort and pressure than the vessels of the upper tracts are adapted for, therefore, some headaches are relieved by enemas or cathartics long before the bowels are emptied. After feces have passed downward enough so that the place of obstruction is relieved, together with the resultant vascular pressure, which causes the headache, the headache disappears. These headaches cannot be toxic; relief is too quick. They are obstructional. At that time I stated that enlarged thyroid glands or any vascular engorgement or enlargement in the thoracic or cranial cavities may be from cardiac overaction. In these locations there is too much blood sent to the upper tract relative to the quantity sent into the abdomen. If the greatest amount of blood reaches the thyroid, it slowly enlarges and begins to overfunctionate in quantity and quality; the tonsils enlarge the same way. So much free space in the oral cavity causes a greater tendency for engorgement there, also in the nose and throat, the wedgeshaped nasal spaces are engorged the soonest and occluded with oozing of serous fluid or mucus. Obstruction of the narrow nasal passages is the logical result; coughs, colds, congestions and inflammations of the nasopharyngeal and respiratory apparatus soon follow.

Dr. Walter C. Alvarez, San Francisco: As I remember Dr. White's paper, when he stimulated the lower bowel mildly, he was unable to see any change; but when he stimulated it powerfully, he could see stasis above and signs of reversal. This is what we should expect. I believe, however, that mild stimuli will produce disturbances which a man can feel but which we cannot demonstrate in an animal. For instance, an enema, particularly one made irritating by the addition of much salt and soap, will produce nausea. This, I believe, is a sign of mild reversed peristalsis. Similarly, a constipated man will stop regurgitating his food the minute the rectal plug is removed. With such mild stimuli I do not believe we could see any changes in an animal's peristalsis. What I would emphasize is that the gradient is there in normal animals; there is no difficulty in demonstrating it; moreover, it is found reversed or flattened in diseased animals. These things must have some significance and it is up to us to face the problem and carry it to a solution.

Clinical Notes, Suggestions, and New Instruments

A JUVENILE PARETIC AND HIS FAMILY

EDWARD LIVINGSTON HUNT, M.D., NEW YORK

P. A. came to my service in the City Hospital, an emaciated and crippled boy of 12. Physically, he showed pupils that were unequal, irregular and immobile, a coated and tremulous tongue, and a coarse tremor involving the entire body. The speech was hesitating and distinctly ataxic. He was paralyzed from the waist down.

The physical signs showed a spastic paraplegia with the reflexes all exaggerated, and loss of control of both sphincters. There were contractures of both legs so that he lay in bed a helpless paralytic.

Mentally, he showed marked dementia. If touched he would scream, and if given orders he would obey them only after considerable repetition and explanation.

The story that the family gave was that up to about 9 years of age he had been able to attend school. After that he was unable to keep up in his lessons; the teachers found him almost impossible to manage, and his schoolmates considered him irritable and uncompanionable. He was taken out of school, but the family found him too great a care at home, and he was sent to the hospital.

The laboratory reported a markedly positive Wassermann reaction in both the blood and the spinal fluid. In the latter the cells numbered twenty The butyric acid test was positive, and the colloidal gold test revealed a typical paretic curve.

The case was diagnosed as one of juvenile paresis. The young patient is still in the hospital, slowly losing both physically and mentally.

The intern staff took considerable interest in a 14-year-old brother of the patient who came to see him. They induced him to allow them to take some blood for a Wassermann test. The laboratory reported this as being markedly positive.

It then developed that there was still a third boy, aged 10. After a time we succeeded in getting a specimen of his blood. The Wassermann test on this boy was like that of his brother, markedly positive.

The boys were sometimes accompanied by a little sister of 8. Her blood was then examined. The report showed a strong positive Wassermann reaction.

The parents of the children were next approached with a view to obtaining a blood test. The father absolutely declined; the mother consented. The Wassermann report in her case was positive.

Here, then, is a family of six, in five of whom the Wassermann blood test was markedly positive, and one of whom presented a typical case of juvenile paresis.

41 East Sixty-Third Street.

CASE OF FOREIGN BODY IN THE NOSE

BYRD WILSON, M.D., CHICAGO

A foreign body in the nose of a child is a matter of comparatively common occurrence, but not common, I believe, in adults who are sane and of ordinary intelligence; therefore, I am prompted to report this case:

Mr. A. B., aged 33, a student of mechanical engineering, came to my office, Dec. 28, 1918, saying that during the past three years, breathing on the right side of the nose had been almost completely obstructed. At times he could inhale a little air through that side of the nose, but he could not exhale. He also complained of a very foul discharge dropping back into the throat which sometimes even produced nausea.

On examination, the nasal septum appeared moderately deflected toward the right. The left nasal chamber showed no particular abnormality, but it was possible to obtain a view of only about the anterior one third of the right nasal chamber. The application of a little 4 per cent. cocain solution brought about enough shrinkage of the membranes to disclose a grayish brown mass of irregularly flat form lying against the septum and occluding inspection farther back; on examination with a probe this proved to be of a hard mineral or stony-like character and extended well back where the probe met definite resistance by what seemed to be a larger mass of like substance. Considerable thick, foul secretion was present in this side of the nose.

With a pair of Hartmann forceps I gently grasped what could be seen of this mass, and two small pieces were removed. This was followed by quite free bleeding which subsided shortly and the patient was directed to return two days later, at which time the two larger pieces were removed with some small fragments. The large and more flat piece was removed anteriorly, but the irregularly spherical piece had to be pushed backward and expectorated by the patient; rather free hemorrhage followed, which subsided shortly. The nasal chamber was irrigated and sprayed with an iodized oil and the patient directed to return the following day, when further examination of the nose did not reveal the presence of any more foreign substance. The nose was treated by mildly antiseptic oil sprays daily for about ten days, at the end of which time the foul smelling discharge had ceased and the patient was breathing freely through both sides of the nose. The large spherical specimen was found to contain in its center a cherry pit, which, it is quite evident, became lodged in the posterior part of the nasal chamber, and gradually the mineral-like substance became deposited around it. But the patient was at a loss to explain how the cherry pit became lodged there. The only explanation seemed to be that he had sneezed or coughed at some time when eating cherries and the pit had then been forced up through the nasopharynx and into the posterior part of the nasal chamber. No evidence of sinus infection was found.

7 West Madison Street.

Therapeutics

A DEPARTMENT DEVOTED TO THE IMPROVEMENT OF THERAPY. A FORUM FOR THE DISCUSSION OF THE USE OF DRUGS AND OTHER REMEDIES IN THE TREATMENT OF DISEASE.

USE AND ABUSE OF CATHARTICS*

(Continued from page 1363)

OLIVE OIL AS A LAXATIVE

Olive oil, cottonseed oil and other food oils and fats can do all that liquid petrolatum can do—and one thing more: they can nourish the body.

That digestible oils may act as laxatives, it is necessary to give more than can be digested and absorbed. This, in the case of an infant, may be one or more teaspoonfuls daily. To obtain laxative effects from olive oil in an infant, it is well to commence with one-quarter teaspoonful once or twice a day after feeding, and to add one dose a day until a dose is given after each feeding. It may then be increased to half a teaspoonful at a dose, if required and if it is well borne. It is inadvisable, however, to use more than 10 or 15 c.c. in a day in case of a young infant; even less than this would be the limit, if the character of the stools becomes abnormal.

The adult must take considerably more of digestible oil than of petrolatum to obtain the same laxative action. The exact dose will differ, of course, chiefly with the amount of other fat ingested and with the

* This is the fourth of a series of articles on the pharmacology, physiology and practical application of the common laxatives and cathartics. The first article appeared October 18.

digestive capacity of the individual. One or two tablespoonfuls may have to be given three times daily either an hour before meals, or, if this interferes with appetite, two hours after meals. Or else, if the patient prefers it, a single dose of from one-half to one wineglassful may be administered on rising, or two hours after breakfast. If this dosage is insufficient, it must be increased, until the desired effect is produced or the limit of tolerance is reached.

When digestible oil is thus administered until laxative action follows, the physician makes certain that the patient is kept at the highest point of fat digestion and assimilation possible for him. Hence, in view of the high caloric value of fat, gain in weight may be expected, unless the patient's previous use of fat was up to the limit of his digestive capacity, or unless the increased fat ingestion impairs appetite or digestion.

CONTRAINDICATIONS

In view of the fattening quality of olive oil thus used, it is obviously contraindicated in obesity, while it is especially indicated in malnutrition. In other words, in an obese person, liquid petrolatum would be the superior laxative; in an emaciated individual, digestible oil ought to be preferred.

In further drawing special indications and contraindications for the laxative use of oil, we should take cognizance of its action on gastric secretion and movement. That oil decidedly lessens the amount of free as well as of total acid, and that it delays the emptying of the stomach, is the verdict of all authorities on this subject. That the diminution in acidity of gastric juice also occurs in conditions of pathologic excess has been shown as well. Hence, while hyperchlorhydria, pylorospasm and peptic ulcer furnish special indications for the use of olive oil, gastric atony or subacidity would contraindicate the prolonged medicinal use of this or of other oils, including liquid petrolatum.

METHOD OF TAKING OLIVE OIL

In the administration of large quantities of oil, such as are contemplated for therapeutic effect, the natural repugnance of many persons against the drinking of fat must be reckoned with. While considerable quantities of oil may be taken with relish in the form of mayonnaise or of French salad dressing, still the amount that can be introduced in cookery is limited. The method advocated by Rutherford[1] is of interest. He advises mixing cold olive oil with about an equal quantity of hot milk. As these are of about the same specific gravity, they will mix perfectly in the form of an emulsion and remain in this condition for a short time (half a minute). Those who dislike milk might prefer to take the oil floating in fruit juice, such as lemon, orange or grape juice. In course of time, people almost without exception acquire a taste for oil, and then take it with relish in any reasonable amount. There is reason to believe that the capacity for taking care of fats may be increased by gradual increase in the amount ingested. It is well, therefore, to commence with small amounts, and to have the patient increase the dose as tolerance is developed.

With some persons the taking of considerable amounts of fat leads to attacks of indigestion, with coated tongue, offensive breath, loss of appetite, abdominal distress and unusually offensive stools as the most prominent symptoms: the condition known as "biliousness." In such, of course, the use of olive oil as a laxative would be ill advised. Whether liquid petrolatum is better borne by such individuals is not known at present.

OLIVE OIL NOT ADVISABLE IN DIABETES

It is now fairly well established that in a person suffering from diabetes, the digestion of excess of fat carries with it the danger of acidosis, owing to incomplete combustion of fatty acids in this condition. Liquid petrolatum should, therefore, be used as an oil laxative in a diabetic, even though the patient's emaciation would make the use of olive oil seem desirable.

SUMMARY

To summarize: Olive oil might be particularly serviceable as a laxative in spastic constipation in an emaciated individual, provided a sufficient quantity to produce this effect can be ingested without causing loss of appetite or other digestive disturbance. The use of olive oil as a laxative would be contraindicated in obesity, in diabetes, in gastric atony and in hypochlorhydria, as well as in those inclined to "biliousness."

(To be continued)

1. Rutherford, H. H.: Pure Olive Oil and Its Use in the Treatment of Chronic Dysentery and Allied Conditions, Am. Med. 7: 432, 1904.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

ACETANNIN.—Acidum Tannicum Diacetylicum.—Di-Acetyl-Tannin.—Tannyl Acetate.—The acetic acid ester of tannin.

Actions and Uses.—Acetanin is claimed to be practically nonirritant to the stomach, and to pass unchanged into the intestine, there to become effective as an astringent in contact with the alkaline juice.

It is employed in diarrheal affections, such as intestinal catarrhs, cholera morbus, cholera infantum and dysentery.

Dosage.—From 0.2 to 0.7 Gm. (3 to 10 grains) four times per day, dry on the tongue followed by a swallow of water, or mixed with food, avoiding warm or alkaline liquids.

Acetannin is prepared by heating tannin and acetic anhydride, in molecular proportions, in the presence of glacial acetic acid in a flask under a reflux condenser, pouring the product of the reaction into water, washing the precipitate produced with warm water, drying and powdering.

It is a light creamy white, odorless or almost odorless, and tasteless powder, which melts at about 160 C. It is practically insoluble in cold water, scarcely soluble in hot water, but soluble in alcohol, and also in solutions of borax, sodium phosphate, sodium carbonate, etc., being precipitated from these solutions by acids. It is rapidly saponified by boiling sodium or potassium hydroxide solutions, or gradually in the cold, into acetic and gallic acids, while ammonium hydroxide produces acetic and tannic acids.

Its aqueous solutions produce with ferric salts a green color, instead of the blue-violet color characteristic of tannic acid. A slightly alkaline solution in sodium phosphate exhibits all the characteristics of an astringent and precipitates albumin, but these properties are destroyed by borax or more alkali.

Acetannin is incompatible with alkalies and with salts of iron; it should not be exposed to heat or moisture.

Acetannin-Calco.—A nonproprietary brand complying with the standards for acetannin.

Manufactured by The Calco Chemical Company, New York. No U. S. patent or trademark.

ANTIPNEUMOCOCCUS SERUM (see N. N. R., 1919, p. 271).

The Gilliland Laboratories, Ambler, Pa.

Antipneumococcic Serum, Combined Types I, II and III (Gilliland).—Prepared by immunizing horses with dead and living pneumococci of the three fixed types (Types I, II and III) and standardized against

Type I culture, so that 0.2 Cc. of the serum will protect a mouse against five hundred thousand fatal doses of virulent Type I pneumococci; in addition it contains antibodies for Types II and III.

Marketed in 50 Cc. gravity injecting packages ready for use and also in 50 Cc. and 100 Cc. vial packages.

Cinchophen-Abbott (see New and Nonofficial Remedies, 1919, p. 227).

The following dosage form has been accepted:

Tablets Cinchophen-Abbott 7½ grains.—Each tablet contains 7½ grains cinchophen-Abbott.

ACRIFLAVINE AND PROFLAVINE

The acridine dyes are derivatives of acridine, a base found in coal-tar. Most of the acridine derivatives have no bactericidal properties, but there are some marked exceptions. One of these (diamino-methyl acridine chloride) was found by Ehrlich to possess notable therapeutic effects in trypanosome infections and, on this account, he called it *trypaflavine*. Most of the studies, both bacteriologic and clinical, have been conducted by English investigators, who call it *acriflavine*. A closely related substance having similar properties is proflavine. Acriflavine and proflavine are claimed by some to have high antiseptic power, together with comparative freedom from toxic or irritant action and without inhibiting effects on the phagocytic action of the leukocytes or on the healing processes.

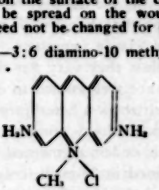
Acriflavine is believed to have greater antiseptic power than proflavine, but its action appears to be slower. Acriflavine and proflavine have been extensively used in the treatment of wounds, and acriflavine has been highly praised in the treatment of gonorrhea. A great deal of literature on the properties of the flavines has appeared, but the reports are contradictory and the clinical evidence is so conflicting that judgment as to the therapeutic value of the substances must be withheld for the present.

Actions and Uses.—Solutions of the acridine dyes may be boiled, or they may be heated in an autoclave to 130 C. without decomposition. The solution most commonly recommended in the treatment of wounds is 1:1,000 in physiologic sodium chloride solution, although weaker solutions have been used. In suppurating wounds this solution is used for syringing and swabbing the wound after free incision, for irrigation after providing adequate drainage, and for soaking the gauze with which the wound is finally covered. Evaporation should be prevented by protective dressing. In cavities, gauze may be soaked in the solution (without wringing) and used as a light packing. Small quantities of the solution (100 Cc. or more) may be left enclosed in cavities or deep wounds. In fresh wounds the parts are cleansed thoroughly with the solution, as much of the solution as possible being left in contact with the injured surfaces. Such wounds may be closed by suture and may be expected to heal by first intention.

In gonorrhea a strength of 1:1,000 in physiologic sodium chloride solution may be used for injection into the urethra. For lavation, when relatively large quantities are to be used, a 1:4,000 solution is preferable because it is less irritating. Solutions of from 1:6,000 to 1:8,000 strength have been used.

An ointment has been used containing 1 per cent. of proflavine oleate (prepared from proflavine base) in an ointment base composed of equal parts of petrolatum and calcium carbonate. A thick layer of the ointment may be spread on gauze and applied on the surface of the cleansed wound, or the ointment may be spread on the wound directly. The primary dressing need not be changed for several days.

ACRIFLAVINE.—3:6 diamino-10 methylacridine chloride $= C_{14}H_{14}N_3Cl.H_2O$.



Actions and Uses.—See preceding general article, Acriflavine and Proflavine.

Dosage.—See preceding general article, Acriflavine and Proflavine.

Acriflavine is a brownish-red, odorless, crystalline powder. It is soluble in less than 2 parts of water and in alcohol, forming dark red solutions which fluoresce on dilution and which have a bitter taste. Nearly insoluble in ether, chloroform, liquid petrolatum, fixed oils and volatile oils.

An aqueous solution of acriflavine (1:250) is neutral to litmus paper (it dyes the litmus paper yellow).

Add a few drops of hydrochloric acid to an aqueous solution of acriflavine, which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on further dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of acriflavine (1:250) and agitate the mixture. An orange-red, crystalline precipitate is produced. Under the microscope the crystals are seen to be mostly long needles or prisms arranged in sheaflike or brushlike forms.

An aqueous solution of acriflavine (1:250) gives a precipitate with silver nitrate solution (*distinction from proflavine*).

An aqueous solution of acriflavine (1:250) does not give a precipitate with barium chloride solution (*distinction from proflavine*).

An aqueous solution of acriflavine (1:250) does not give a precipitate with formaldehyde solution (*distinction from proflavine, which gives a brown precipitate*).

Add 2 drops of diluted hydrochloric acid to 5 c.c. of an aqueous solution of acriflavine (1:250) and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. By the further addition of an excess of sodium nitrite solution, a violet precipitate is formed and, after a few minutes, the color of the solution becomes cherry-red. This may be best observed after filtration (*distinction from proflavine, the filtrate from which is colorless*).

An aqueous solution of acriflavine (1:250) gives an orange precipitate with sodium hydroxide test solution (*distinction from proflavine, which gives a yellow precipitate*).

Incinerate about 1 Gm. of acriflavine, accurately weighed. The ash amounts to not more than 1 per cent.

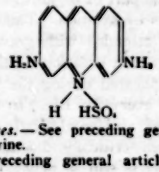
Dissolve about 1 Gm. of acriflavine, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 1 per cent.

Dry about 1 Gm. of acriflavine, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

Acriflavine (Boots).[1]—A brand of acriflavine complying with the N. N. R. standards for acriflavine.

Manufactured by Boots Pure Drug Co., Ltd., Nottingham, England (Hynson, Westcott & Dunning, Baltimore). No U. S. patent or trademark.

PROFLAVINE.—3:6 diamino acridine sulphate $= C_{13}H_{11}N_3H_2SO_4.H_2O$.



Actions and Uses.—See preceding general article, Acriflavine and Proflavine.

Dosage.—See preceding general article, Acriflavine and Proflavine.

Proflavine is a reddish-brown, odorless, crystalline powder.

Proflavine is soluble in water and in alcohol, forming brownish solutions which fluoresce on dilution. Nearly insoluble in ether, chloroform, liquid petrolatum, fixed oils and volatile oils.

An aqueous solution of proflavine is neutral to litmus paper (the solution dyes the litmus paper yellow).

Add a few drops of hydrochloric acid to an aqueous solution of proflavine, which is sufficiently dilute to be fluorescent. The fluorescence disappears, but partially reappears on dilution with water.

Add 2 drops of sulphuric acid to about 1 Cc. of an aqueous solution of proflavine (1:250), and agitate the mixture. A brown, crystalline precipitate is produced. Under the microscope the crystals are seen to be mostly prismatic needles.

An aqueous solution of proflavine (1:250) gives a precipitate with barium chloride solution (*distinction from acriflavine*).

An aqueous solution of proflavine (1:250) gives no precipitate with silver nitrate solution (*distinction from acriflavine*).

Add a few drops of formaldehyde solution to 5 c.c. of an aqueous solution of proflavine (1:250). A brown precipitate is given (*distinction from acriflavine, which remains clear*).

Add 2 drops of diluted hydrochloric acid to 5 c.c. of aqueous solution of proflavine (1:250), and immediately add 2 drops of sodium nitrite solution (1:10). A violet color is produced. On the further addition of sodium nitrite solution a brownish violet precipitate is formed and, after a few minutes, the solution becomes colorless. This may be best observed after filtration (*distinction from acriflavine, the filtrate from which becomes cherry-red*).

An aqueous solution of proflavine (1:250) gives a lemon yellow precipitate with sodium hydroxide solution (*distinction from acriflavine, which gives an orange precipitate*).

Incinerate about 1 Gm. of proflavine, accurately weighed. The ash amounts to not more than 1 per cent.

Dissolve about 1 Gm. of proflavine, accurately weighed, in 250 Cc. of warm water, collect the insoluble matter, if any, in a weighed Gooch crucible, wash the insoluble matter with hot water, dry and weigh the residue. The insoluble matter amounts to not more than 1 per cent.

Dry about 1 Gm. of proflavine, accurately weighed, to constant weight at 100 C. The substance loses not more than 10 per cent. of its weight.

Proflavine (Boots).[1]—A brand of proflavine complying with the N. N. R. standards for proflavine.

Manufactured by Boots Pure Drug Co., Ltd., Nottingham, England (Hynson, Westcott & Dunning, Baltimore). No U. S. patent or trademark.

1. The Chemical Foundation holds that it controls patents which cover the manufacture of acriflavine and proflavine and is trying to arrange for the manufacture of a satisfactory product in this country under these patents. In view of the foregoing, Hynson, Westcott & Dunning will discontinue the sale of these products after Dec. 1, 1919.

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SATURDAY, NOVEMBER 8, 1919

DEATHS INCIDENT TO AVIATION

The shocking losses of human life that attended the recent cross-continent aeroplane flights bring the reminder that aviation has created new problems, not only for the physiologist concerned with life at high altitudes and bodily adjustments in unusual environments, but also for the clinician and pathologist who are expected to deal with abnormalities of behavior and function on the part of organisms subjected to the unusual exigencies of aviation. The art of flying is, furthermore, still attended with grave dangers from accidents which in turn occasion death under circumstances rarely duplicated during the usual course of other fatalities of every-day life. In this country the special features of accidental death during aviation have not yet been critically discussed, presumably because the subject is still so new. During the war, however, the deaths of aviators were so common that the statistics of the injuries which they received in action have assumed considerable proportions.

A fall from a great height such as is frequently attained by an aeroplane at the moment of catastrophe is in itself an unusual experience, involving forces that are potent with harm for the person concerned. Added sources of danger and bodily damage are presented by the simultaneously falling machine with its heavy, moving masses of wood and metal. To crushing factors are joined the possibilities of severe laceration by revolving propellers and of burns by ignited fuel or heated parts. It is not surprising, therefore, that the injuries are manifold, complex and severe.

Certain recurring features have been summarized by Jaffé and Sternberg.[1] Fractures of the bones are almost invariably observed, the skull rarely remaining uninjured. Ruptures and injuries to the internal organs of the abdomen are liable to occur even though the walls of the latter remain intact; for owing to the varying weights of these organs they are subject to unlike movements and strains during the fall of the body through the air, often with attending irregularities of descent. Ruptured lungs have been observed and, together with the extreme intra-abdominal distortions just referred to, they illustrate types of traumatism not often encountered in the usual run of accidents on terra firma. Almost every variety of crushing and bruising may be noted, as might be expected. Surprisingly numerous, however, are the accounts of the rupture of the aorta in those killed through aeroplane accidents. How the rupture of this strong vessel is so readily brought about has been debated. Its elasticity might be expected to afford protection against sudden stress in the form of pressure from within. When, however, the blood pressure is enormously increased in the upper region of the aorta, just beyond the heart valves, owing to compression of the vessel at some point farther removed from the blood pump, the walls evidently may be burst open. This is particularly possible when stretching of the aorta lengthwise to the limit of its elasticity decreases its effective resistance to blood pressure. Inward compression of the bony structures of the thorax may furnish the occluding factor; whereas the stretching may follow the displacement of the heart from its normal position. In any event, rupture of the aorta, however produced, may probably be regarded as an exceptionally frequent necropsy finding as a result of that complex group of maiming forces conspiring to produce death in aerial accidents.

1. Jaffé, R. H., and Sternberg, H.: Der Fliegertod: ein Beitrag zur Frage der traumatischen Aortenrupturen, Vrtljschr. f. gerichtl. Med. 58:74, 1919.

THE COLOR OF THE IRIS DURING INFANCY

The fact that the eyes of infants are almost invariably deep blue during the earliest weeks of life was recorded centuries ago. Modern investigations have furnished a clue to the explanation of the color changes in the iris during early infancy. The blue color is alleged to be due to the paucity of pigment in the stroma of the iris. This tissue is still very thin in early life, so that the posterior layer of pigment in the eye is plainly apparent through it. With increasing age, the stroma thickens. If no further pigmentation takes place in it, the iris tends to manifest a light blue or a gray shade; but when pigment is deposited in the iris layers, this organ becomes brown. Even in negro infants the iris may be blue in early life.

The progress of the changes of color shows some uniformity when large numbers of infants are observed. Doubtless they vary for different localities and races, which are well known to exhibit characteristic eye colors that show a hereditary constancy. The blond complexion of the Scandinavians is associated with the light blue, or less pigmented, iris. In a group of persons examined in Munich, only 32 per cent. of the adults retained the blue iris. Among the children of these persons the rate of alteration in iris color varied considerably. In the first three months of life three quarters of them still retained the blue color; in six months it was still characteristic of 70 per cent. of the infants; at the ages of 9 months and 1 year the

blue-eyed infant population represented 63 per cent. and 53 per cent., respectively. These data thus indicate the slow progressive pigmentation of the eyes leading to darker iris colors in the Bavarian groups examined.

Schindler[1] has called attention in this connection to observations made in Pfaundler's clinic at Munich on a possible correlation between the rate of pigmentation, with corresponding change in the color of the iris, and the nutrition of the infant. According to her, the iris of many malnourished young, particularly among those suffering from somewhat chronic disturbances of digestion or metabolism leading to atrophic manifestations, may exhibit a change of shade at an age when healthy infants as a rule still retain the blue color. The appearance has been described as a dirty gray shade, sometimes fusing into a brownish tint.

If the premature pigmentation of the iris in early infancy is, in fact, a symptom of severe metabolic disorder—a suggestion which further careful clinical observation should help to establish or refute—its cause becomes an immediate occasion for speculation. In the absence of further experimental investigations on the subject, the Munich pediatricians conjecture that the darker color of the iris of malnourished infants is due to a deposition of pigment arising from augmented disintegration of blood pigment. Hemosiderosis has been described in the liver and spleen of atrophic infants. By analogy, a deposition of pigment elsewhere might be expected. At best, however, this is theorizing, for it is not even known whether the pigment of the iris is actually derived from that of the blood.

THE RELATIONSHIP BETWEEN HERPES ZOSTER, SYPHILIS AND CHICKENPOX

The significance of herpes zoster is still a matter for speculation. While technically a disease of the skin, the condition is one that has always been of interest to the neurologist and to the general practitioner. Originally regarded as occurring along the distribution of peripheral nerves, it has been recognized, since the epoch-marking discoveries of Henry Head, as having a segmental distribution. Certain aspects of the disease, particularly its relationship to syphilis, have recently been discussed by Brown and Dujardin.[2] These observers noted that herpes zoster was distinctly more prevalent among a group of soldiers under observation for syphilis than it was among an unselected group of patients from the civilian population of the district. Among the syphilitics, zoster occurred in a proportion of four cases per thousand, while among the general population the disease occurred only in the proportion of one case per thousand. It was noted, too, that in the syphilitics the herpes had a predilection for the lumbar and sacral ganglions corresponding to the well known observation that spinal syphilis is more likely to attack the lower segments. In connection with these cases of zoster, the authors studied the changes in the spinal fluid and found that there was frequently a lymphocytosis occasionally accompanied by an increase in globulin, and in the case of the syphilitics sometimes accompanied by a positive Wassermann reaction. The authors assume that zoster is an infectious process, and that syphilis acts simply by producing local conditions which predispose the ganglions of the spinal cord to infection with the agent producing the disease.

This paper raises several interesting points. It is pertinent to inquire whether zoster is really a disease per se or whether it is a syndrome which may result from any condition causing inflammation of the spinal ganglions. It is well known that syphilis is frequently latent in the spinal meninges without clinical manifestations of spinal disease. Is it not possible, then, that the unusual frequency of zoster among syphilitics is due simply to the frequency of inflammatory conditions of the spinal meninges in this disease?

There is, however, some evidence which suggests that zoster is a specific infection due to the virus that causes chickenpox. Scattered through the literature for a number of years are observations, such as those compiled by LeFeuvre and more recently those by Low, which indicate a curious relationship between zoster and chickenpox. Instances are recorded of one member of a family developing herpes zoster, to be followed later by the appearance of chickenpox in other members of the family. Instances of the opposite order, namely, the development of herpes zoster in a family after chickenpox, have also been recorded, and there are a few instances of herpes zoster and chickenpox in the same person. There are so many of these cases now on record that it would seem that there was here more than mere coincidence. Many observers are convinced, therefore, that herpes zoster is simply an atypical manifestation of the chickenpox virus.

Interesting though these observations are, they do not seem to warrant the conclusion that herpes zoster is invariably an evidence of infection with the chickenpox virus. Chickenpox is a disease that is usually so insignificant and so lacking in symptoms suggesting involvement of the central nervous system that it is doubtful whether anybody has investigated the spinal fluid in a large number of cases. It is quite possible that investigation may prove that a low grade spinal meningitis is a common accompaniment of chickenpox just as it is of the large pox. A careful study of the cerebrospinal fluid in this disease, as well as a more thoroughgoing investigation of the spinal fluid in all

1. Schindler, Emma: Ueber die Irisfarbe des Säuglings, ein Beitrag zur Symptomatologie der Ernährungsstörungen im Säuglingsalter, Ztschr. f. Kinderh. **19**: 153 (July) 1919.
2. Brown and Dujardin: Brain, **42**, Part 1, 1919.

cases of herpes zoster, might reveal illuminating information on this point. Incidentally, it is difficult to see how Brown and Dujardin could be sure that the spinal lymphocytosis in their cases was not due to the underlying syphilis rather than the zoster.

THE COMPOSITION OF THE BLOOD IN SUNLIGHT AND DARKNESS

The belief that sunlight is indispensable to human welfare has become strongly entrenched in modern hygienic propaganda. The scientific study of the possible basis for such views has lagged far behind the claims that have been advanced for the beneficent effects of light. Fresh air and sunshine are advocated the world over as desiderata in the campaign against disease; yet those who proclaim their virtues might often find it difficult to explain precisely how these climatic factors affect the human organism. Bacteriology has demonstrated the action of light in destroying various micro-organisms. In specific cases the effects of light rays of different sorts on the skin and the functions of the body as a whole are admitted; but at best the phenomena of heliotherapy are inadequately understood, and the influence of light is far from being clearly demonstrated in relation to the ordinary physiologic manifestations.

The marked contrast between the pale complexions of most urban residents and the more ruddy color of the rural population has doubtless given rise to the assumption, once somewhat prevalent, that the relative exposure to light in city and country, respectively, is responsible not only for differences in the pigmentation of the skin, but perhaps also for the composition of the blood. Statements have been published to the effect that the long months of darkness during the absence of sunlight in the polar regions are productive of a pallor that might be charged to anemia. Actual reports regarding the health of members of various polar expeditions seem to negative this explanation. Blessing, who acted as physician during Nansen's expedition on the *Fram*, made blood examinations from time to time and testifies to an absence of anemia in the persons examined by him.[1]

An interesting test of the possible effects of prolonged lack of sunlight on the composition of the blood was made just prior to the war by Grober and Sempell[2] of Jena. They examined a considerable number of horses in use in the coal mines. Many of these animals had been kept at work for years in the absence of sunlight below the surface. Anemia was not discovered in any case in which a satisfactory nutritive condition existed. It is therefore improbable that sunlight is in any sense directly concerned with the hematopoietic functions. At any rate, if it is, compensatory processes render the lack of sunlight negligible so far as the number of red corpuscles and their content of hemoglobin is concerned.

1. Blessing: Deutsch. med. Wchnschr., 1897, p. 251. Schoenenberger, F.: Der Einfluss des Lichts auf den tierischen Organismus nebst Untersuchungen über Veränderungen des Blutes bei Lichtabschluss, Inaug. Diss., Berlin, 1898.
2. Grober and Sempell: Die Blutzusammensetzung bei jahrelanger Entziehung des Sonnenlichtes, Deutsch. Arch. f. klin. Med. 129: 305 (July) 1919.

THE BODY TISSUES IN INDICANEMIA

The occurrence of indicanuria and its relation to putrefactive changes in the alimentary tract are well known. At one time there was considerable speculation in scientific circles regarding the origin of indican, some investigators being inclined to ascribe a part of the excreted product to abnormal changes in the tissues. The preponderance of evidence, however, points to indol, formed by bacterial decomposition of protein in the intestine, as the chief, if not the exclusive, precursor of urinary indican. The output of the latter appears to depend quite as much on the quantity and chemical character of the protein components of the diet as on the opportunities for bacterial changes in the alimentary tract.

One of the significant features of insufficiency of kidney function is the accumulation of catabolites in the blood. For example, the content of urea, uric acid and creatinin may be markedly augmented in the circulating medium of the body when the production of urine is interfered with through some damage to the renal tissues. Under such conditions, indican likewise may accumulate in the blood, instead of being excreted promptly. Indicanemia thus becomes one of the symptoms of uremia, although there is no conclusive indication that it represents a toxic factor.[1] From the standpoint of harmful dosage, the toxicity of the quantities of indican and its precursors that are formed and circulated is apparently too slight to account for any untoward manifestations. The consensus of evidence leads one to doubt the production of noticeable intoxication from either indol or indican under ordinary conditions.[2]

In the case of various excretory products and notably urea, it is now well known that they accumulate in the tissues proper in a concentration quite comparable to that which they reach in the blood whenever the renal functions are inadequate to remove them in normal measure from the body. Whether this bathing of the cells with solutions unduly rich in catabolites is a cause of irritation or damage cannot be definitely stated. Experiments by Becher[3] in the medical clinic at Giessen have shown that indican is an exception in contrast with the compounds familiarly classed under the nonprotein nitrogenous components of the blood. Even under conditions exhibiting severe indicanemia,

1. Dorner: Deutsch. Arch. f. klin. Med. 113: 342, 1914. Rosenberg: Arch. f. exper. Path. u. Pharmakol. 79: 260, 1916. Tscherkoff: Deutsch. med. Wchnschr. 40: 1713, 1914.
2. Wells, H. G.: Chemical Pathology, 1918, p. 574, gives further evidence.
3. Becher, E.: Ueber Indikanretention in den Geweben, Deutsch. Arch. f. klin. Med. 130: 8 (April) 1919.

indican is recoverable in very small quantities, if any, from the tissues. Indican is not found in the spinal fluid even during intense indicanemia.[4] Whatever the significance of indican may be in the genesis of harmful conditions in the body, it cannot be regarded as a direct cause of local detriment in the body tissues.

Current Comment

THE MENACE OF THE PLAGUE

We are reminded by two recent events in widely separated parts of the United States what a serious menace is held over us by the smoldering of the plague in various places. October 29, while the American Public Health Association was meeting in New Orleans, a death from plague occurred in that city, and more cases have been reported since. This was the first human case reported in that city for several years, and plague-infected rats have not been found for some time. A still more ominous occurrence is the recent epidemic of plague in Oakland, Calif. The first case appeared, August 18, in a squirrel hunter, and was followed by thirteen cases of the pneumonic type, twelve of them fatal. Three of the patients, including the original squirrel hunter, were treated at home throughout their illness, with no precautions. The others in whom the identity of the infection was recognized were either hospitalized or completely isolated. The last death in this epidemic occurred on September 11, since which time no further cases have developed. It is inevitable that a certain sense of insecurity will be caused by these events, and that redoubled effort will be made to minimize the danger of squirrel plague infection. The Oakland epidemic suggests the unpleasant possibility of a more widespread outbreak of pneumonic plague where climatic conditions are favorable. It does not seem to be outside the range of possibilities that sooner or later the plague may win a foothold among the rats in the slums of some of our large Northern cities. If this happens, human pneumonic plague must evidently be looked on as a possible sequel.

THE ALLEGED FOOD VALUE OF SACCHARIN

Not long ago attention was directed in THE JOURNAL[5] to the subject of physiologic oxidation and its alleged relation to certain catalytic properties of the tissues. The latter, and particularly the blood, are capable of liberating oxygen from hydrogen peroxid by an enzyme-like reaction which has been ascribed to "catalase." It has been assumed by a few investigators, notably Burge, that a measure of this catalytic power of the tissues is an index of their metabolic activity. We need not reiterate here the criticisms of this view[5] which have already been advanced, notably by Becht.[6] He remarks that since the catalytic power of the blood varies between enormously wide limits under the same conditions, it is unlikely that the catalases are important and that the measurement of them can explain "the mysteries of the processes of oxidation." One of the factors particularly advanced by Burge in support of his theory was the asserted increase in catalase noted as the accompaniment of features known to promote metabolism. Stehle[7] has repeated the studies at the University of Pennsylvania School of Medicine without finding the parallelism on which the catalase theory of metabolism is based. He observed that the fluctuations in the catalase content of the blood are due to variations in the number of red cells. Consequently, Stehle notes, it is simpler to regard the catalase content as dependent on the number of erythrocytes than to assume any direct relation between catalase and biologic oxidations. Among other compounds, Burge has ascribed to saccharin the property of increasing the catalase content of the blood.[8] Correlating this with an increase in metabolism, he concluded that saccharin exhibits advantages characteristic of foods that are known to augment metabolism. Despite the fact that the doses used by Burge in his experiments amounted to 5 gm. per kilogram of body weight and thus far exceeded any dietetically significant quantities, his seeming approval of the effect of these enormous doses of saccharin was promptly made use of by certain advertisers to promote the use of this chemical substance in the diet. Stehle[7] has disposed of the assumed basis for this undesirable propaganda by what amounts essentially to a denial of the claims made. The advocacy of saccharin as a food can no longer pose in the garb of scientific proof.

EXPERIMENTAL PARATYPHOID AND TYPHOID FEVERS

In view of the fact that paratyphoid and typhoid fevers have not been produced in animals experimentally by feeding, except in the chimpanzee, certain recent work by Besredka[9] is of considerable interest. He has found that when paratyphoid bacilli are introduced by mouth in the rabbit, they may be recovered in greater or less numbers in the pyloric part of the stomach, but the gastro-intestinal mucosa offers a definite barrier to their localization and dissemination in the organism. Massive doses of bacilli may be given by mouth with very little effect on the animal. In an attempt to overcome this resistance, ox bile was given by mouth, and then feeding of bacilli produced intestinal lesions corresponding exactly to those produced by feeding in the chimpanzee. The bile thus administered has not only a direct effect on the mucosa but also stimulates the secretion of bile, which causes an intense desquamation of intestinal epithelium, and this in turn opens an entrance for paratyphoid bacilli when introduced a little later. An animal treated in this manner develops recognizable symptoms of disease in from one to four days; diarrhea comes on and becomes

4. Rosenberg: Berl. klin. Wchnschr. **53**: 1314, 1916.
5. Oxidation in the Body, editorial, J. A. M. A. **72**: 1679 (June 7) 1919.
6. Becht, F. C.: Observations on the Catalytic Power of Blood and Solid Tissue, Am. J. Physiol. **48**: 171 (March) 1919.
7. Stehle, R. L.: Some Data Concerning the Alleged Relation of Catalase for Animal Oxidations, J. Biol. Chem. **39**: 403 (Sept.) 1919.
8. Burge, W. E.: Saccharin for Sugar, Science, New York **48**: 549, 1918.
9. Besredka: Ann. de l'Inst. Pasteur **33**: 557, 1919.

progressively worse; there is rapid loss of weight; the temperature falls, and the animal usually dies within two or three days. After death, the changes in the intestine and gallbladder are found to be quite typical of paratyphoid infection. When the disease is not of long duration, pure cultures of the bacilli are obtained from the blood and bile. The stomach contents are sterile, but there is an abundance of bacilli in the intestinal contents. When paratyphoid bacilli are introduced intravenously in a rabbit, a generalized infection occurs, and the animal may die very quickly of septicemia or it may live for some time. In the latter case only a few colonies may develop in cultures of the blood, but bacilli may be present in large numbers in the bile and intestinal contents, and macroscopically the lesions are typical of paratyphoid infection. Besredka obtained corresponding results from feeding when typhoid bacilli were used in the experiments. In view of the ease with which bile renders the rabbit susceptible to typhoid and paratyphoid infections, the natural immunity of this animal to these infections seems to be largely of intestinal origin. Experimentally it seems possible to cause both paratyphoid and typhoid infection either by introducing the bacilli by the mouth in rabbits to which bile has been previously given or in some cases by intravenous injection of bacilli in rabbits without any preliminary treatment.

POLITICS PLAYS WITH PUBLIC HEALTH

The dictum of Disraeli that the care of the public health is of primary importance to the state seems frequently to have been taken by the politician to mean that positions in the public health department are primarily for his disposal. Newspapers coming from Hawaii indicate that the game has been played in that territory with all the old angles. About a year ago a new governor was appointed. At the time of his appointment the executive head of the public health department was a man who had been in public health work in Hawaii for some twenty-five years. During the time of his incumbency an organization was established that prominent public health authorities appraised as probably equal to any health department in the United States and better than the majority. The new governor removed the incumbent and appointed as head a business man—to be specific, a salesman of automobiles. According to the newspapers, the qualifications of the new health official soon were taxed to the utmost and he found himself somewhat in the position of a driver who holds the wheel on a car after the steering knuckle has broken. In an attempt to get out from under he involved himself with a local health officer, and according to the Honolulu papers the governor is now looking for a new head for the health department. One of the requirements is that he shall not be a business man—a knowledge of automobiles will not be considered necessary.

Human Credulity.—There is something in humanity that always leaps up and believes again at the bidding of spells and charms and incantations; and this is a true instinct, for the incantation is an attempt to sing in tune with the vaster rhythms and the tidal moods of the creating universe.—D. Marquis.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Hospital Buys Land.—The Alabama-Bryce Hospital, Tuscaloosa, has purchased 87 acres of land on the Huntsville Road, 3 miles from the city, for $212 an acre. The land was needed as a location for the new institution for the feebleminded of Alabama, for which the legislature has authorized the expenditure of $250,000.

Personal.—Dr. Frank W. McCorkle, Uniontown, has been appointed assistant health officer of Huntsville and Madison counties.——Dr. Percy O. Chaudron, Dothan, has been discharged as lieutenant-colonel, M. C., U. S. Army, and will resume practice.——Dr. Henry B. Wilkinson, health officer of Montgomery and Montgomery County, has resigned and will resume practice in Montgomery.

CALIFORNIA

Personal.—As the result of a competitive examination, Dr. Neal Naramore Wood, Lieut.-Col., M. C., U. S. Army, has been made first assistant superintendent of charities and medical director for the department of charities of the Los Angeles County Hospital, succeeding Dr. J. Mark Lacy, Los Angeles, who has resigned to enter private practice.

Sanatorium at San Diego.—Plans for the establishment of a large sanatorium at Alpine are well under way. The sanatorium will, it is announced, be the largest in southern California, and will include the Los Robles Hotel and 280 acres of ground facing the state highway. The institution will be under the medical direction of Dr. Hyman Lischner, San Diego, at present head of the Lischner Sanitarium for Children.

COLORADO

Graduate Teaching Arranged by State Association.—The Colorado State Medical Society has announced that a course of graduate teaching is being arranged for county societies which desire it. About fifty members of the state association will probably be apportioned into groups of four. Each team will lecture to different county societies each two weeks for six consecutive months. These talks will be made by practitioners of medicine to physicians in active practice, and it is promised that the lectures will be made intensely useful in daily work.

DISTRICT OF COLUMBIA

Monument to General Sternberg Unveiled.—A monument erected in memory of Surg.-Gen. George Miller Sternberg, at the National Cemetery, was unveiled, November 5, and remarks were made by Surg.-Gen. Merritte W. Ireland, U. S. Army, Brig.-Gen. Walter D. McCaw, Col. Edward L. Munson, and Col. Frederick F. Russell, Army Medical Corps, and Dr. George M. Kober, Washington, D. C.

ILLINOIS

Canton Physicians Organize.—At the meeting of the physicians of Canton, October 9, the Canton Physicians' Club was reorganized, with Dr. Harvey H. Rogers, president, Dr. Charles N. Allison, vice president, and Dr. Everett P. Coleman, secretary.

Health Report.—During the week ended October 20, there were reported to the state department of health 306 cases of diphtheria of which Chicago had 188; 79 cases of influenza of which 16 were in Hannah City; 213 of scarlet fever, of which 30 were in Chicago; 35 cases of smallpox, of which 11 were in Roodhouse, and 12 in Crook Township, Hamilton County, and 33 cases of typhoid fever, and 7 cases of poliomyelitis.——An outbreak of typhoid fever is reported in Wood River Township, near East Alton, and Dr. Samuel S. Winner, Chicago, has been sent to take charge of the situation.

Chicago

Hahnemann Home-Coming Day.—November 4 was celebrated as home-coming day for the Hahnemann Medical College and Hospital of Chicago. In the evening an informal

reception and dinner was given in honor of the newly elected president of the Hahnemann institution, Prof. Daniel Russell Hodgdon, and of Mrs. Hodgdon.

English Surgeons in Chicago.—Major-Gen. Sir Anthony Bowlby and Major-Gen. Sir Robert Jones, R. A. M. C., were in Chicago, November 1 and 2, and addressed a joint meeting of the Chicago Surgical Society and Chicago Orthopedic Society and were entertained by the members of these societies at dinner at the University Club.

Personal.—Dr. Anthony Biankini was tendered a farewell dinner by the Czecho-Slovak citizens of Chicago, October 28. He left for Europe the following day.——Dr. Peter C. Clemensen has resigned as a member of the board of education.——Dr. George G. Davis has been appointed chief surgeon of the Illinois Steel Company, succeeding Dr. James Burry, deceased.

Gynecologists Elect Officers.—At the annual meeting of the Chicago Gynecological Society, held October 17, the following officers were elected: president, Dr. Arthur H. Curtis; vice presidents, Drs. Henry F. Lewis and Philip S. Doane; secretary, Dr. Joseph L. Baer; treasurer, Dr. Charles B. Reed; editor, W. C. Danforth, and pathologist, Dr. Carey Culbertson. The attention of the members of the profession was called to the fact that there is an annual prize of $100 offered to the best inaugural thesis of the year, the subject matter representing original research or investigation. The active membership of the society is limited to fifty and there are at present twelve vacancies.

Hospital Items.—In the drive for $250,000 to erect a new building for the Evangelical Deaconess Hospital, $72,000 was received.——It is proposed to erect a new building for the Ravenswood Hospital at a cost of $600,000, utilizing the old building for a training school and nurses' home. The new building will be on the southeast corner of Wilson and Winchester Avenues, 207 by 41 feet and seven stories and basement in height.——Announcement is made that the Lutherans of Chicago plan to build a hospital in the neighborhood of Humboldt Park, at a cost of $350,000.——Members of the Gold Star Mothers' Association have subscribed several hundred dollars toward a bed in the new Paris-Chicago Hospital.

INDIANA

Personal.—Dr. Edmund M. Van Buskirk, Fort Wayne, has been appointed assistant collaterating epidemiologist, and will cooperate with the United States Public Health Service and the state in fighting epidemics.——Dr. George F. Beasley, Lafayette, is reported to be seriously ill with pneumonia.

Hoosier Health Herald.—The first issue of this magazine, edited by E. Q. Laudeman, and published in Rochester, appeared, September 22. All of the articles pertain to tuberculosis and its prevention. The leading article is contributed by Dr. John N. Hurty, Indianapolis, secretary of the state board of health.

Nurses' Home.—The Methodist Hospital, Indianapolis, is to have a new home for nurses to cost $300,000. The building will be in brick and stone, similar in design to the main building, will be five stories in height, and will have a frontage of 176 feet in Capital Avenue and a depth of 158 feet. The home will be completed next year.

Resignation Accepted.—At a dinner given by the Tippecanoe County Medical Society at Lafayette, September 23, the resignation from membership of Dr. Charles J. Brockway was unanimously accepted. It was also stated that Dr. Brockway's resignation from the staff of the Home Hospital and St. Elizabeth's Hospital, has been accepted by unanimous consent.

New District Officers.—At the annual meeting of the Eighth District Medical Society, held in Muncie, October 16, under the presidency of Dr. Leonard F. Schmauss, Alexandria, the following officers were elected: president, Dr. Milton T. Jay, Portland; vice president, Dr. Charles L. Botkin, Farmland, and secretary-treasurer, Dr. Clay A. Ball, Muncie.——At the annual meeting of the Eleventh Councilor District Medical Association, held in Wabash, October 16, Dr. Maurice H. Krebs, Huntington, was reelected president, and Dr. John H. Reed, Logansport, was reelected secretary and treasurer. The next meeting will be held in Peru.——The Union District Medical Association held its 104th semiannual meeting in Richmond, October 23. Connersville was selected as the place for the April meeting. Dr. Joseph N. Study, Cambridge City, was elected president, and Dr. James E. King, Richmond, secretary-treasurer.

IOWA

Smallpox in Lost Nation.—It is reported that all schools and churches have been closed and all public gatherings prohibited at Lost Nation, where ten families have been quarantined.

Southeastern Physicians Meet.—The Southeastern Iowa Medical Society held its annual meeting at Washington, October 16. Dr. Edward T. Edgerly, Ottumwa, was elected president; Dr. Henry C. Hull, Washington, vice president, and Dr. E. Francis La Force, Burlington, secretary-treasurer.

Personal.—Drs. William H. Heller, Remsen, and James M. Fettes, Lemars, have been added to the staff of the Lemars Clinic.——Dr. Harley L. Sayler, Des Moines, reappointed as health commissioner, resumed his duties, October 1.——The meeting of the Jackson County Medical Society, September 19, was devoted to an appreciation of Dr. Asa B. Bowen, Maquoketa, who has practiced medicine in Jackson County for half a century.

KENTUCKY

Vital Statistics Registrar Moves.—Dr. W. Edward Grant, registrar of vital statistics, has moved his office from the City Hall, Louisville, to the headquarters of the state board of health at Sixth and Main streets.

Personal.—Ellis Duncan, Lieut.-Col., M. C., U. S. Army, one of the first Louisville surgeons to enter war service, was discharged at Camp Zachary Taylor, September 30.——Dr. Tilden H. Singleton, Bowling Green, was operated on for appendicitis, October 14, at St. Thomas Hospital, Nashville, Tenn.

Negro Antituberculosis Sanatorium.—Articles of incorporation were filed, October 10, at Louisville, by the National Anti-Tubercular Sanatorium for Colored People, the object being to establish a sanatorium for treatment of negroes where climatic conditions are best suited. The corporation has no capital stock and is authorized to incur liabilities not to exceed $20,000. The promotors are: Dr. William H. Perry, A. E. Meyzeek, G. M. McClellan and W. H. Wright.

Clinic Holding Company Incorporates.—The Clinic Holding Company, composed of physicians associated with Dr. David Barrow, Lexington, filed articles of incorporation with the Fayette County clerk, recently. The corporation is capitalized at $100,000 and is empowered to own real estate and personal property for the purpose of holding clinics and to carry on general practice.

Praise Physicians for War Service.—October 5, 180 physicians who served in the war were the guests of honor at a banquet given by the medical profession of Louisville at the Pendennis Club. Dr. Isadore N. Bloom, Louisville, officiated as toastmaster and responses were made by Major-Gen. Charles P. Summerall, commanding the First Division, Hon. Alexander P. Humphrey, E. R. Mullins and Hon. Albert Peter.——A smoker was given, September 15, by the Jefferson County Medical Society at Louisville for 200 of its members who had been either with the American Expeditionary Forces in France or had in other ways given their services to the country during the world war. The address of welcome was made by Dr. Lewis S. McMurtry.

LOUISIANA

Bubonic Plague.—Up to November 3, four cases of bubonic plague were said to have been reported in New Orleans, with two deaths.

Extension of Drug Addict Work.—Extension of the clinic of the state board of health for the cure of drug addicts over the whole state is being considered by Dr. Merrick W. Swords, New Orleans, secretary of the board.

Physician Pardoned.—E. D. Roberts, Baton Rouge, convicted of attempted assault four years ago, has been pardoned by the governor, on recommendation of the board of pardons. During the influenza epidemic Dr. Roberts did excellent work among the convicts.

Personal.—Dr. Benjamin A. Ledbetter, New Orleans, fell into an open elevator shaft at the Charity Hospital, October 13, fracturing three ribs and sustaining other severe injuries.——Dr. Isadore Dyer, dean of the School of Medicine of Tulane University, New Orleans, has been appointed colonel on the staff of the Surgeon-General.——Dr. Edmund Moss, chief medical inspector of the public schools of New Orleans, has returned after serving in the Army.——Dr. James A. Henderson, chief surgeon of the Louisiana Naval Militia,

New Orleans, at the outbreak of the war, has been promoted to commander, M. C., U. S. Navy.

Smallpox in Louisiana.—The Louisiana records of deaths for the first six months of 1919 show 147 deaths from smallpox. Eighty-one of these deaths occurred in three of the southwestern parishes, two of which border on Texas. The fourth parish, in which there occurred twenty-five deaths, is among the south central parishes. One hundred and six of the 147, therefore, occurred in four parishes. The records of the bureau of epidemiology show 958 cases reported. One hundred and fifty-three physicians reported from forty-seven parishes. It is reported that smallpox was introduced into Calcasieu and broke out simultaneously in December, 1918, in two places in Lake Charles, one the jail, and at West Lake, practically a suburb of Lake Charles. It is stated by the health officer of Calcasieu that all three cases came from Beaumont, Texas. Unofficially it was reported to the board that the smallpox was spread to southwestern Louisiana from a child brought by a negro woman in her arms from a point in Texas to a Louisiana town. The type of smallpox is that which is characterized as "Mexican." It was diagnosed as confluent and hemorrhagic. During the outbreak in Calcasieu, in January, 1919, vaccine was very hard to obtain.

MAINE

Hospital Incorporated.—The hospital founded by the late Harrison B. Webster, Major, M. C., U. S. Army, at Castine, has been incorporated and will be known as the Castine General Hospital. The institution will be supported by an appropriation from the state and from private funds as well as from its own earnings. Dr. Harold S. Babcock is director of the institution.

Antituberculosis Association Elects Officers.—At the annual meeting of the Maine Anti-Tuberculosis Association, held in Portland, September 25, Dr. Elmer D. Merrill, Foxcroft, was elected president; Dr. Sylvester J. Beach, Augusta, vice president, and Drs. Frederick C. Thayer, Waterville; Nelson E. Nichols, Portland; Theodore E. Hardy, Waterville, and Edwin W. Gehring, Portland, directors.

MISSOURI

Venereal Clinic at St. Joseph.—At a meeting of the city council of St. Joseph, October 13, $5,000 was appropriated for the establishment of a venereal disease clinic. Other persons interested will guarantee the remaining $5,000 which will be required to conduct the clinic until the end of the fiscal year.

Clinic to Be Opened Twelve Hours.—The free clinic for the treatment of venereal disease which opened in Kansas City, October 16, will be open from 9 in the morning until 9 at night. The extension of these hours has been arranged so that people who work during the day may obtain the benefit of the treatment. Dr. Edward H. Clark is in charge of the clinic.

Former Service Men to Meet.—The temporary association of former medical service men of southwest Missouri will meet in Joplin, November 11, when a permanent organization will be effected. The territory includes twenty-eight counties of southwestern Missouri and in this territory there are about 175 physicians who served during the world war. Dr. William A. Delzell, Springfield, is temporary president of the organization.

Chiropodists Licensed.—The bill passed at the last session of the legislature to license chiropodists went into effect, October 1. All chiropodists will be required to obtain a license from the state board of health. Those who have practiced more than one year may obtain the license on the payment of the fee of $25, while those who have practiced less than a year will be required to pass an examination. The law defines chiropody as follows: "The treatment for hire or reward of abnormal nails, superficial excrescences of the skin not involving the subdermal tissues occurring on the feet, including corns, warts, callosities and bunions, but not including the treatment of injuries to or congenital or acquired deformities of the feet or conditions requiring the use of anesthetics or incisions involving the structure below the level of the true skin."

NEW YORK

Personal.—Dr. William G. Bissell, Buffalo, director of laboratories in the Buffalo Health Department, has been reappointed president of the state board of medical examiners, and Dr. Aaron B. Miller, Syracuse, vice president. ——Harold W. Lyall, Ph.D., formerly with the New York State Research and Antitoxin Laboratory, Otisville, has been appointed bacteriologist in the division of laboratories and research of the New York Department of Health, Albany.

Typhoid at Tonawanda.—About 200 cases of typhoid fever have occurred at Tonawanda, coincidental with the lowering of the intake of the public water supply system. Extended investigation made by the division of communicable diseases and the engineering division in an effort to aid the city authorities in the suppression of the epidemic and the improvement of water supply conditions, disclosed that a break had occurred in the intake pipe, allowing contaminated Niagara river water to enter the mains.

District Society Meeting.—At the recent meeting of the Seventh District Branch of the Medical Society of the State of New York, held in Rochester, October 2, Dr. Owen E. Jones, Rochester, was elected president; Dr. I. Harris Levy, Syracuse, vice president; Dr. George K. Collier, Sonyea, secretary, and Dr. Alfred W. Armstrong, Canandaigua, treasurer.——At the annual meeting of Fifth District Branch of the Medical Society of the State of New York, held in Rome, October 3, Dr. William D. Alsever, Syracuse, was elected president; Dr. Charles Bernstein, Rome, vice president, and Dr. George W. Miles, Oneida, secretary-treasurer.

New York City

Habit-Forming Drugs Found.—A package wrapped in newspaper found accidentally near Fort Lee, contained $35,000 worth of habit-forming drugs, including heroin and codein.

Academy Anniversary.—The anniversary discourse was delivered at the New York Academy of Medicine, November 6, by Rev. Charles Oubrey Eaton, D.D., on "New Men for a New Age."

Harvey Society Lectures.—The third lecture of the Harvey Society series by Dr. Alonzo E. Taylor of the University of Pennsylvania, on "The Food Supply of Europe During the Coming Year," will be delivered, November 15, at 8:30.

Acquitted of Furnishing Drugs to Addicts.—Dr. Louis A. Falk and Julius Nelson, a druggist, have been acquitted in the Federal District Court of charges of violating the Harrison Narcotic Law by furnishing opium and other drugs to addicts.

Red Cross Opens Health Flat.—The New York branch of the American Red Cross has opened a "health flat" at 418 West Twenty-Ninth Street, where women of the Chelsea district, chiefly wives of dockmen and factory operatives, will receive instruction in home nursing and a general course in cooking. The school is a part of the peace program of the organization.

New Society for Relief of Blind.—The Permanent Blind Relief War Fund for Soldiers and Sailors of the Allies has been incorporated in this state. The objects of the organization, as set forth in the petition, are: to raise and receive moneys, funds, securities and other properties by voluntary contribution and disburse the same for the relief of soldiers and sailors of the United States and of the nations associated with it in the war, who have been blinded in the war or as a result thereof. Sir Arthur Pearson is one of the patrons of the newly incorporated society.

Health Department Assists in Diagnosis of Meningitis.—A recent *Weekly Bulletin* of the New York City Health Department calls the attention of the physicians of New York City to the fact that the meningitis division of the health department is prepared to send one of its members to consult with them on cases of suspected meningitis or other meningeal involvement. Cases are not seen without the physician in charge being in attendance. Lumbar puncture will be performed if it is advisable, and serum will be administered if it is indicated. Physicians are urged to take advantage of this aid.

PENNSYLVANIA

Personal.—Dr. Thompson McD. Baird, Tunkhannock, has been commissioned lieutenant-colonel, M. R. C., U. S. Army. ——Dr. T. Lyle Hazlett, Pittsburgh, has been appointed medical director at the Mont Alto Sanatorium, succeeding Dr. Frederick C. Johnson, who has been granted leave of absence.

Philadelphia

Convict Osteopath.—Prosecuted by the state board of medical education and licensure, Phillip Sheridan Daily, an osteopath, is said to have been convicted before Judge Martin in Quarter Sessions Court No. 2, October 30, on a charge of prescribing medicine without a license.

Weir Mitchell Oration.—The Weir Mitchell oration will be delivered by Dr. Charles W. Burr at the College of Physicians of Philadelphia, November 19, at 8:30 p. m. The subject of the oration will be "Dr. S. Weir Mitchell as a Physician, a Man of Science, a Man of Affairs, and a Man of Letters."

Meeting of College of Physicians.—At the stated meeting of the College of Physicians in Philadelphia, November 5, Dr. Francis X. Dercum read a memoir on the late Dr. Henry, and presented the college with a portrait of Dr. Frederick P. Henry in behalf of his family. The scientific papers of the meeting were by Major D. H. Gillies, R. A. M. C., surgeon in chief of the Queens Hospital for Facial Reconstruction at Sidcup, England, on "Plastic Operations on the Nose and Eyelid," and by James B. Wennell, civilian medical officer in charge of the massage department, Military Orthopedic Hospital, Sheperd's Bush, London, on "The After-Treatment of Fractures by Massage."

Uniform Administration of Laws on Mental Diseases.—Plans for a wider and more uniform administration of the law relating to mental hygiene were formulated at the first fall meeting of the mental hygiene committee of the Public Charities Association, October 29. The aim is to combat scientifically the future spread of mental diseases in Pennsylvania. The program contemplates the management of institutions for the treatment of the insane and epileptics, together with other classes of mental deficiencies under the control of a single board. The strict enforcement of the Lanius bill, passed at the recent session of the legislature, for regulating conditions relating to mental hygiene, is urged. Establishment of psychopathic hospitals and the broadening of their scope of usefulness through the employment of the vast knowledge on the subject gained as a result of the treatment of mental diseases during the war, also is planned. Dr. Owen Kopp of the Pennsylvania Hospital for the Insane was chosen chairman of the mental hygiene committee. Addresses were made by Dr. E. Stanley Abbott who has accepted the post of medical adviser of the committee, Dr. Theodore Diller, Pittsburgh, and Dr. Thomas W. Salmon, New York City.

TENNESSEE

Sanatorium Burns.—Fire originated in the negro male ward in the Memphis Tuberculosis Sanatorium, October 17, consuming the white and negro male wards and damaging other portions of the building. All inmates were removed from the structure without casualty.

Personal.—Dr. Eugene A. Gilbert, St. Elmo, has been appointed associate director of health for the city of Chattanooga, and Dr. Edward B. Wise, city physician and director of the municipal clinic.——Dr. William W. Core, superintendent of the Davidson County Hospital, Nashville, underwent an operation at St. Thomas Hospital, recently, and is reported to be doing well.

Hospital Items.—A hospital drive was initiated at Memphis, October 13, to obtain $350,000 for the Tri-State Non-Sectarian Jewish Hospital. Only Jewish residents of Tennesee, Arkansas and Mississippi are being solicited, but voluntary subscriptions will be welcome.——A hospital properly equipped for the employment of first aid and the performance of minor operations has been installed at the plant of the Harvey Steel Products Company, Jackson, under the charge of Dr. Stanford M. Herron, who has a trained nurse to assist him.——The U. S. Public Health Service announced, October 7, that pending improvements to enlarge the facilities of the hospital and to install additional beds, the Marine Hospital at Memphis will be closed.

TEXAS

Surgeons Elect Officers.—At the semiannual convention of the Texas Surgical Association, held in Temple, October 13 and 14, San Antonio was selected as the next place of meeting. Dr. Frank Paschal, San Antonio, was elected president, and Dr. Frank L. Barnes, Houston, was reelected secretary.

Rural Health Drive Organized.—The counties of Tarrant, Wichita, Bell, Williamson and Jackson have organized for a health drive to begin January 1. The state and international health boards will give $5,000 to each of the counties, and each will be expected to furnish a similar amount. The work will be under the charge of a whole-time county health officer with the necessary assistants.

District Society Meeting.—At the forty-sixth annual meeting of the South Texas District Medical Association held in Galveston, October 9 and 10, the following officers were elected: president, Dr. William B. Thorning, Houston; vice president, Dr. Moses Thompson, Beaumont, and secretary, Dr. Jared E. Clarke, Jr., Houston. The next meeting of the association will be held in April, 1920, at Beaumont.

Personal.—Dr. Clute E. Rayburn, Waco, who served overseas during the World War, has been commissioned Major, M. R. C., U. S. Army.——Dr. Ira C. Garst has been appointed a member of the staff of the bureau of rural sanitation of the state board of health. Dr. H. L. Capps has been appointed county director in the same bureau and has been assigned to duty at Beaumont where he will have charge of the rural sanitation of Jefferson County.——Dr. Alexander P. Harrison, Austin, has been appointed director of the bureau of rural sanitation of the state board of health, succeeding Dr. Platt W. Covington, Austin, who has been transferred to Kentucky.——Miss Elizabeth Murford has been appointed assistant city pathologist of Houston, succeeding Dr. L. R. Hilliar, resigned.——Dr. L. E. Parker, Laredo, has been appointed state registrar of vital statistics with headquarters at Austin.

VERMONT

State Association Meeting.—At the annual meeting of the Vermont State Medical Society, held in Burlington, October 9 and 10, the following officers were elected: president, Dr. Michael F. McGuire, Montpelier; vice president, Dr. Alan Davidson, St. Albans; secretary, Dr. William G. Ricker, St. Johnsbury; treasurer, Dr. David Marvin, Essex Junction; councilors, first district, Dr. James N. Jenne, Burlington, second district, Dr. Schuyler W. Hammond, Rutland, third district, Dr. Frank E. Farmer, St. Johnsbury, fourth district, Dr. Alanson C. Bailey, Randolph; anniversary chairman, Dr. Charles A. Cramton, St. Johnsbury, and delegate to the American Medical Association, Dr. Frederick T. Kidder, Woodstock.

Program of Tuberculosis Association.—The Vermont Tuberculosis Association has announced an ambitious program for 1920. It is proposed to place a public health nurse in each of the ten health districts of the state, to open and equip a number of health stations, and to secure part time of a tuberculosis expert to consult with the physicians on diagnosis. The association also approves the open window schoolroom and will supply a cook, dishes, food, clothing, etc., to schools that will furnish a room where the children will go to school with open windows. The children will be warmly clothed, and will receive two warm lunches and a dinner at the school. The homes of these children will be visited to secure the cooperation of the parents so that they will receive practically the preventorium care at home. The association desires three of these rooms, each one accommodating fifteen patients. To do the work outlined, $40,000 will be required.

WASHINGTON

Medical Building in Seattle.—A medical building company plans to construct a ten-story office building in Seattle for the exclusive use of physicians and dentists.

Traveling Tuberculosis Clinic.—The Washington Tuberculosis Association is visiting different cities with a clinic and moving picture outfit for the exhibition of tuberculous conditions. Local physicians supplement the visits of the traveling clinic with health talks.

Hospital Notes.—Drs. James T. Mason, John M. Blackford and Maurice F. Dwyer, Seattle, have purchased a lot on which they will construct a modern hospital. It will be a concrete building, five stories high, and will cost $150,000.——Construction has been begun on the new St. Joseph's Hospital, Aberdeen. The building will contain fifty rooms for patients, besides wards and three operating rooms.——As the present site of St. Peter's Hospital is desired for an addition to the new capitol site, the Sisters of Providence of Olympia have purchased land on which it is proposed to build a new hospital.

CANADA

Personal.—Col. Wallace A. Scott, C. M. G., Officer Commanding, Moore Barracks Hospital, Folkestone, England, has arrived in Toronto from overseas.——Dr. John Harris McPhedran has returned to Toronto from overseas and has resumed practice.——Dr. Oswald J. C. Withrow, Toronto, will lecture in the United States on sex hygiene. He was recently elected secretary of the Ontario Association for the Care of the Feebleminded.

University News.—Dean James C. Connell of the medical department of Queen's University, Kingston, Ont., denies the statement that the clinical work of Queen's Medical College will eventually be transferred to Ottawa. The hospitals of Kingston serve a large district of eastern Ontario, and plans are far advanced for the rebuilding and enlargement of the General Hospital, $100,000 being in hand for the purpose. For some time past there has been more clinical material than is being used.

GENERAL

Roentgenologists to Meet.—The twentieth annual meeting of the Western Roentgen Society will be held in Chicago, December 10 to 12, with headquarters at the Hotel Sherman.

Ohio Valley Physicians to Meet.—The annual meeting of the Ohio Valley Medical Association will be held in Evansville, November 11 and 12, under the presidency of Dr. J. Rawson Pennington, Chicago.

Country Health Conference.—The second National Country Health Conference meets at the LaSalle Hotel, Chicago, November 8 to 11. The object of this conference is to arouse the interests of all rural institutions and agencies and their responsibility for better health in the country.

Physicians Victimized.—A physician of Jersey City notifies THE JOURNAL that a man has been victimizing members of the profession by taking orders for the Cameron light diagnostic outfit, and requiring a deposit in the name of the Dental and Surgical Company, 1807 Franklin Avenue, Philadelphia. A letter sent to the company has been returned with the notation "Not Known." The man is about 5 feet 6 inches tall, fair, smooth face and smooth tongued.

Red Cross Activities in Public Health Service Hospitals.—Red Cross Hospital material valued at $700,000 has been transferred to U. S. Public Health Service Hospital warehouses, and will be issued on order from the officials of the hospitals and of the Red Cross hospital personnel for the comfort of ex-service men under treatment in these hospitals. The supplies include gauze, pajamas, comfort kits, towels, laundry bags, fracture socks, bedroom slippers, underwear and bathrobes.

New York and New England Surgeons Elect Officers.—At the twenty-ninth annual meeting of the New York and New England Railway Surgeons' Association, held in New York City, October 20, under the presidency of Dr. James S. Hill, Bellows Falls, Vt., the following officers were elected: president, Dr. William B. Coley, New York City; vice presidents, Drs. John F. J. Black, White Plains, N. Y., and Donald Guthrie, Sayre, Pa.; treasurer, Dr. James M. Hamilton, Rutland, Vt.; corresponding secretary, Dr. George H. Chaffee, Binghamton, N. Y., and recording secretary, Dr. John H. Reid, Troy, N. Y.

Public Health Scholarships Granted.—The American Red Cross has granted scholarships to 247 American nurses, 109 of whom have been released recently from military service in this country and overseas, to enable them to take training in public health service. Of these scholarships, 123 have been for $300 each, permitting each recipient a four months' course of training, while the remainder have been for six, eight and nine months' courses, each nurse choosing the school where she desires to receive her instruction.

Appeal for Louvain University Library.—The librarian of Congress sent out an appeal, October 25, setting forth the urgent desire of the authorities of the University of Louvain for the rehabilitation of their library. The publications of the learned societies of the United States are especially desired, and the Smithsonian Institution has undertaken to forward any material contributed through the International Exchange Service. Any contributions should be strongly wrapped or boxed, and plainly marked "The Smithsonian Institution, Washington, D. C., for the University of Louvain." An itemized list of contributions should be sent directly to the Smithsonian Institution.

Public Health Officers Meet.—At the annual meeting of the American Public Health Association, held in New Orleans, October 27 to 30, under the presidency of Dr. Lee K. Frankel, Ph.D., New York, the following officers were elected: president, Dr. Watson S. Rankin, Raleigh, N. C.; vice presidents, John Armyot, Ottawa, Ont., and Drs. William H. Robin, New Orleans, and Guilford H. Sumner, Des Moines, Iowa; secretary, W. H. Hedrick, Boston; treasurer, Lee K. Frankel, Ph.D., New York, and directors, Drs. John Dill Robertson, Chicago, Henry F. Vaughan, Detroit, Mazyck P. Ravenel, Columbia, Mo., Haven Emerson, New York, John A. Kappelman, Canton, Ohio, and Eugene R. Kelley, Boston. San Francisco was chosen as the place of meeting for 1920.

Bequests and Donations.—The following bequests and donations have recently been announced:

Women's Hospital, New York City, $1,378,172; Presbyterian Hospital, State Charities Aid Association, and Infirmary for Women and Children, each $776,586, Charity Organization Society of New York $1,573,172, Mt. Sinai Hospital, $100,000; New York Institute for the Deaf and Dumb, and Servants for the Relief of Incurable Cancer, each $20,000, by the will of Mrs. Margaret Olivia Sage.

Kenosha, Wis., Hospital, Kenosha Service League and St. Catherines Hospital, Kenosha, each one third of $2,500 taken from four bandits who held up and robbed a gambling house in Kenosha recently.

Hartford, Conn., Hospital, a donation of $50,000 from J. Pierpont Morgan, New York City.

Rockefeller Institute, New York City, an addition of $10,000,000 to the endowment for additional research in biology, chemistry, physics, and medicine and general enlargement of the scope of activity of the institution.

St. Anthony's Hospital, Rock Island, Ill., a donation of $1,000 from the Rock Island Plow Company.

Abington, Pa., Memorial Hospital, and Hahnemann Hospital, Philadelphia, each $500,000, by the will of George W. Elkins.

Jewish Hospital, $7,500 for a free room, and $2,500 to be used by the hospital in any way it sees fit, $2,500 for the Jewish Foster Home and Orphan Asylum, and $1,000 for the Eaglesville, Pa., home for consumptives, by the will of Jacob Meyer.

FOREIGN

Dundalk Physicians Strike.—In a recent cablegram it is stated that the physicians of Dundalk, Ireland, have gone on strike to enforce demands for a minimum weekly salary of $35 for all public services. They claim that their present salaries average $1,375 a year.

Control of Venereal Disease in Spain.—The King of Spain has issued a decree establishing a permanent board for the control of venereal disease, which is to make a study of the proposed measures and report back to the government the recommendations necessary to put the measures into effect.

Field Hospital Finally Stationed.—An American field hospital which traveled from Hoboken to France, from Bordeaux to Germany, from Trier to Constantinople, and from Constantinople to Ekaterinburg, Russia, has finally been placed with the southern division of General Kolchak's army. The hospital has 500 beds and two operating rooms, and includes all equipment needed for immediate operation.

Sanitary Measures on Spain-Portugal Frontier.—A French exchange states that an agreement has been signed between Spain and Portugal which provides for the compulsory declaration in the frontier zones of plague, cholera and yellow fever. Also, temporarily, for smallpox, typhus, typhoid, cerebrospinal meningitis and diphtheria whenever these diseases are assuming an epidemic character. Sanitary stations are to be organized along the frontier.

Interallied Typhus Commission in Poland.—The medical commission sent by the Interallied League of Red Cross Societies to study the typhus situation in Poland has begun its investigation in Warsaw. The commission is composed of Col. Hugh S. Cumming, Washington, D. C., Assistant Surgeon-General, U. S. P. H. Service, chairman; Lieut.-Col. Aldo Castellani, Royal Italian Navy Medical Service; Lieut.-Col. George S. Buchanan, Medical Officer of Health, Ministry of Health of Great Britain; and Lieut.-Col. Visbecq, French Army Medical Service.

Typhus Exterminated from Serbia.—The five-year campaign which American Red Cross physicians and nurses have been waging against typhus fever in Serbia has ended victoriously. The recent report of the Serbian Commission states that there are now only about sixty-five cases in the country, two thirds of these being in Belgrade. During 1915, 150,000 persons died from the disease out of a population of 3,000,000 and 150 physicians died, so that there was only one physician to 75,000 persons. The commission has now turned its efforts toward instilling the principles of hygiene, sanitation and nutrition into the minds of the people.

Institute of Social Physiology.—This is the title to be given to a new institute soon to be organized at Milan in connection with the other institutes for graduate work. The scope of this *instituto di fisiologia sociale* is to conduct research on problems relating to food, to industrial efficiency, to growth and the school, the manufacture of foods, professional and industrial safeguards for the health, applying functional methods of examination and psychic tests, etc.—aiming in short to control and assist the elementary, professional and industrial schools from the standpoints both of physiology and

pathology. Dr. L. Veratti is said to be the sponsor for this new institution.

Some Missing Foreign Weeklies.—After an absence of weeks or months three weeklies, the *Bulletin de l'Académie de Médecine*, the *Bulletin de la Société des Hôpitaux de Paris* and the *Policlinico* of Rome are again appearing. The latter has been suspended on account of a printers' strike, the issue for July 20 not appearing until September 10, and the publishers are unable to guarantee its regular appearance even now. The *Bulletin de l'Académie de Médecine* was not issued during the several weeks of the vacation of the Académie. This is the first time the Académie has taken a recess since the war began. The *Bulletin des Hôpitaux* was also suspended for the same reason. The Société des Hôpitaux opened its new year with a gala meeting to which were invited all the physicians, surgeons, accoucheurs and specialists of all the hospitals.

LATIN AMERICA

Plague in Argentina.—According to a cablegram from Argentina, bubonic plague has assumed a serious character in the territory of Formosa, in the northeastern part of Argentina.

Influenza in Bolivia.—It is reported from Chile that the influenza epidemic is spreading throughout Bolivia and the government is taking active measures to combat it. It is stated that several thousands of cases have occurred at Santa Cruz and its vicinity.

Retirement of Prof. Decoud.—Dr. Diogenes Decoud, professor of surgery at the University of Buenos Aires, having reached the age limit, has retired from his chair. Prof. A. F. Celesia has been given charge of the work until a new incumbent can be appointed.

Smallpox in Havana.—It is reported from Havana that smallpox cases are decreasing in number rapidly through the effectual work of the sanitary authorities. So far, the committee on infectious diseases has considered positive only one case which shows the low infectivity of the disease. The authorities except, however, that new cases may occur in from eight to ten days.

Milk Stations Conference in Chile.—There was recently held in Chile the Congreso Nacional de Gota de Leche. A number of papers were presented by several physicians. The conclusions adopted included the extension of the Gouttes de Lait; visits to the children in their homes; medical assistance; improvement of milk supply; treatment of parents with infectious diseases, etc.

New Methods for Teaching Hygiene in Buenos Aires.—The National Council of Education has authorized the trial in three schools of Buenos Aires of a system of teaching hygiene suggested by Dr. José F. Montellano. This system contemplates teaching in concrete form only those fundamental principles of practical usefulness the truth of which has been demonstrated, and to furnish this in as objective a form as practicable. The purpose is to give the children some practical knowledge that may be necessary for the preservation of their health, and in such a form that they will understand it thoroughly and it will be impressed on them for life. Dr. Montellano has already furnished the first chart he is going to use which shows the progress of phagocytosis, including the composition of the blood, the red and white corpuscles, the introduction of microbes, their destruction, etc. Similar charts will be employed to show the progress of the different diseases and approved prophylactic methods.

Deaths in the Profession.—Dr. **Juan B. Fuentes,** formerly physician in chief of the Clinica de Partos at Havana, and since then connected with the public health service.——Dr. **I. Resende,** formerly prosector at the Rio de Janeiro medical faculty, but for many years practicing medicine at S. Paulo, aged 59.——Dr. **C. M. de Novaes,** a well-known surgeon and urologist at S. Paulo. . . . Also from S. Paulo is reported the death of Dr. **G. Ellis,** physician to two of the hospitals and president of the Sociedade de Medicina e Cirurgia de S. Paulo, aged 72, and of Dr. **J. Valeriano de Souza,** surgeon to the Beneficiencia Portuguesa and professor in the pharmacy school.——Dr. **Alfredo Porto,** professor of skin and venereal diseases at the University of Rio de Janeiro since 1907 and a frequent writer on subjects connected with this specialty. He succumbed in the midst of robust health to the effects of scratch infection from a patient with erysipelas——Mr. **L. Cianci,** an official radiologist for the Buenos Aires medical faculty, recently died at the age of 40 from injuries received during the performance of his duties.

Government Services

Personnel of the Medical Corps

Up to Oct. 31, 1919, there had been discharged from the Medical Corps 28,093 officers, which taken from a maximum of 30,591 leaves 2,498 in the service. The Reserve Corps contains 3,697 officers, including, 1 brigadier-general, 63 colonels, 208 lieutenant-colonels, 900 majors, 1,551 captains and 954 lieutenants.

British Medical Officers Decorated

In recognition of their services during the late war, the President has conferred the Distinguished Service Medal on Major-Gen. Sir Anthony Bowlby and Major-Gen. Sir Robert Jones, R. A. M. C. The Secretary of War designated Major-Gen. Merritte W. Ireland to represent the President in conferring these decorations, which were presented in New York City.

Major General Bowlby, while serving with the British Expeditionary Force in France, placed his knowledge and experience at the disposal of the American Expeditionary Forces.

Major General Jones, who is an eminent orthopedic surgeon and chief of the division of orthopedic surgery in the British Army, gave most valuable advice and personal assistance in standardizing methods of the sick and wounded of the American Expeditionary Forces and also in the instruction of American Army surgeons in the branch of surgery for which he is noted.

Distinguished Service Medal

The Distinguished Service Medal has been awarded to the following medical officers:

Charles Lynch, Colonel, M. C., U. S. Army, "As port surgeon, Port of Embarkation, Newport News, Va., his services at governing and controlling agencies for caring for sick and wounded soldiers, protecting them against disease, and safeguarding them prior to and during transport overseas, were conspicuous."

James M. Kennedy, Colonel, Medical Corps, U. S. Army, "As port surgeon, Port of Embarkation, Hoboken, N. J., organized, provided and administered with conspicuous efficiency all hospitals required for accommodation of transports going overseas for that port, as well as for the large number of sick and wounded soldiers returning home."

Other Awards

Gray G. Holladay, Lieut., U. S. Navy, R. F., Portsmouth, Va., surgeon of the U. S. S. *George Washington* was honored by receiving a decoration from King Albert of Belgium.

Dr. Mary Hughes Elliott, Blue Mountain, Miss., who went to the Balkans last winter as a member of the American Commission to Serbia, has been awarded the Serbian Decoration of the Order of Saba.

Alfred E. Lemon, Major, U. S. Army, Douglas, Ariz., has been awarded the Croix de Guerre, with citation by the Tenth French Army Corps, order No. 14382D.

Captain Alfred E. Lemon, Medical Corps, 125th American Infantry: The 29th of August, 1918, near the farm of Vamprez, north of Soissons, being all day with the wounded at the battalion and regimental aid stations; although under constant fire, his behavior in danger and his "sang froid" served as an example to other doctors and men under his orders, causing the saving of the lives of many wounded. Signed Petain (by Calleman).

Educational Service Report

Educational service reports for August submitted by seventeen army hospitals show that ninety of the 3,494 who received certificates of disability for the month were designated as unfit for their old occupation, the balance being able to resume their old occupation, and are not in need of assistance. The enrolment of war handicapped decreased from 14,010 in July to 10,719 in August. Most of these patients were engaged in making and weaving textiles, reed, cane and fiber work, wood working and occupations in which leather, cardboard and binding materials are used. During August, 15,944, or 53 per cent. of the total number of patients in hospitals, were enrolled at the educational stage, as compared with 55 per cent. in July, 47 per cent. in June, 48 per cent. in May, and 43 per cent. in April.

Reception to Surgeon-General

A reception was given, October 9, by the members of the Officers' Club, Dupont Circle, Washington, D. C., in honor of

Major-Gen. Merritte W. Ireland, Surgeon-General, U. S. Army, and Mrs. Ireland, and officers and ladies of the Surgeon-General's Department stationed in Washington and vicinity.

MEDICAL OFFICERS, U. S. NAVY, RELIEVED FROM ACTIVE DUTY

CONNECTICUT
New Haven—Dennehy, W. J.

DISTRICT OF COLUMBIA
Washington—Stanley, A. C.

IOWA
Lemars—Gehlen, J. N.

MASSACHUSETTS
Boston—Sise, L. F.

MICHIGAN
Ewen—Alden, S. J.

PENNSYLVANIA
Philadelphia—Edgar, J. M. Spoont, E. M.

Foreign Correspondence

BUENOS AIRES LETTER

Buenos Aires, Sept. 21, 1919.

Public Assistance Difficulties

The progressive increase in the prices of drugs and foods has aggravated the constant economic difficulties with which the public assistance department of this capital is always struggling. This is in part due to the fact that we have constantly with us an enormous number of patients from all over the country, half of whom do not properly belong here. The surgical and medical equipment is deficient and the surgical service is maintained only through the public spirit of the physicians in charge. These difficulties have caused the authorities to make attempts to increase the hospital funds. Those in charge of the public assistance have requested the cooperation of the people, in order to provide clothing, shoes, orthopedic apparatus, transportation, etc., for the indigent patients. The commission appointed to this effect has obtained quite a large number of contributions, but on account of its expenses and the little success that attended some of the public sales, the funds obtained have not been by far as large as expected.

Influenza Epidemic

The epidemic of influenza has spread all over the country and has even reached the neighboring city of Montevideo. In this city the increase of cases of influenza as well as pneumonia has continued, although so far it has not assumed an epidemic character. The investigations carried out by the national department of public health showed the presence of the pneumococcus, streptococcus and the Pfeiffer bacillus. Dr. Méndez has stated, although without presenting any experimental data, that the only etiologic agent of the influenzal affections is the pneumococcus, and holds that the streptococcus and Pfeiffer bacillus are only varieties of this micro-organism. On this theory he has prepared a special pneumococcic vaccine which has been employed as a preventive and curative agent on a very large scale throughout the country and which is very popular among the masses. It has also been used subsequently for the equine meningo-encephalitis, foot and mouth disease, puppy diseases, etc., There has also been an increase of the mortality caused by pulmonary tuberculosis. The national department of public health has been compelled to mobilize its forces on different occasions. Several commissions have been sent to different provinces, and some are now visiting Santiago del Estero and Tamarca. The secretary, Dr. Teófilo Lecour, has visited several places and made a tour of inspection of all the coast to supervise the permanent sanitary organizations as well as those organized temporarily to combat influenza.

Creation of Public Health Stations

The national government has under consideration the creation of permanent public health offices at Jujuy, La Rioja and Salta.

Rat Eradication

The national congress has under consideration a bill for the compulsory destruction of rats, in order to prevent the possible spread of bubonic plague, isolated cases of which occur occasionally in different regions of this country.

University Exchange

The Spanish Culture Association of Buenos Aires gives annually at its expense a university course which is given by some prominent Spanish professor. This year the man in charge is Dr. Augusto Pi y Suñer, the professor of physiology of the Medical School of Barcelona. The first lecture, given July 26, was a marked success. The complete course will consist of from eighteen to twenty-five lessons in this city, and in addition some lectures in Rosario, Cordoba, Montevideo and other cities. In the first lecture he emphasized the existence of a trophic sensitiveness through which the nervous elements maintain their balance. This sensitiveness acts through the nerves and humoral chemical agents. Montevideo professors, including Drs. Pou Orfila, Pratt and Morelli, have also given some lectures in the School of Medicine of Buenos Aires. Dr. Pedro Chuto, who recently arrived from the United States, has also given a series on the surgical lessons learned during the war.

Malaria

As a result of the floods of the River Paraguay there have been observed a number of malaria foci in the district of Formosa, and a sanitary campaign has been arranged to control the spread of the disease.

Second Tuberculosis Conference

The second national tuberculosis conference was held at the city of Rosario, September 6. There was in connection with it a public exposition devoted to illustrate the prophylaxis of tuberculosis. The secretary of foreign affairs and public assistance delivered an address expressing the interest of the government in having tuberculosis prophylaxis and treatment placed on a sound basis, for which purpose a bill has already been introduced in congress. The discussions were somewhat heated, some of the participants having shown too much feeling in their remarks. While no papers of any special importance were presented, a certain uniformity was observed in the plans submitted. It was decided to advise the creation of dispensaries which will act as centers for assistance, selection of hospital cases and preventive education, this being supplemented by visits to the homes and assistance whenever required. The establishment of a sanatorium for each hundred thousand inhabitants was also advocated, as well as the creation of special tuberculosis hospitals and seaside or mountain sanatoriums when needed. The strict application of measures of sanitary supervision on foodstuffs, servants, public offices and public places was also recommended. In addition, the recommendations included the construction on a larger scale than heretofore of low-priced houses, the improvement of the measures for infant welfare, extension of the anti-tuberculosis and antialcoholic propaganda, especially in the schools, and the enforcement of a system of compulsory reporting of the disease and assistance to indigent families. In order to carry out these purposes, there was advocated the creation of a special independent commission with its own appropriations which would appoint special commissions under its jurisdiction. The pending governmental bill was indorsed, although it was considered necessary to have some system of compulsory health insurance.

New Tuberculosis Dispensary

The Argentina association for the prevention of tuberculosis has opened a new dispensary called Eduardo Wilde in one of the most populous sections of the city. The dispensary is provided with modern equipment, the funds for this purpose having been obtained through popular contributions.

Narcotic Legislation

The campaign against the use of habit-forming drugs has recently been given new impulse, and the existing laws are being enforced rigidly.

MEXICO LETTER

Mexico, Oct. 26, 1919.

The Opium Case

The large quantity of opium which was found by the police in a private house, and which was believed to be intended to be smuggled into the United States, has been confiscated by the authorities, who have placed it at the disposal of the board of public health. The value of the confiscated opium is estimated as about $22,000.

The Mexican Medical Association

The Mexican Medical Association has decided to address a petition to the House of Representatives, explaining the advantages that will accrue to the people in general, and the professional classes in particular, from the adoption of a law that will restrict the practice of medicine and allied professions to duly licensed persons. This law would put an end

to the serious harm that the quacks are doing at present in this country.——The association has decided to grant annually two prizes of 250 pesos ($125) each, which will be granted to medical students who have completed the third year and are poor, honest and studious. The prizes will be granted by a jury consisting of two of the professors (the dean and one of the third-year professors), two of the officers of the Mexican Medical Association, and one third-year medical student who will not be eligible to the prize on account of his pecuniary position.——It has been decided to adopt an emblem for the members, which will consist of an enamel button on which will appear engraved the traditional staff and serpent of Esculapius.

The Field Nurses

The war department has ordered that hereafter the nurses belonging to the sanitary corps of the army will serve only in the hospitals, and that on no account will they be assigned to the troops on the field as done heretofore. This is due to the fact that some of them have complained of abuses. The services previously rendered by female nurses will hereafter be rendered by male nurses.

New Bacteriologic Department

There has been begun the construction of a pavilion for the National Bacteriological Institute, which will be devoted to the study and growth of the most dangerous germs, such as the Yersin plague bacillus and the cholera vibrio. Some of the cultures of these bacteria, which the laboratory had previously, have been lost, and new ones have been imported from American laboratories. It is expected that the new building will give the necessary protection to prevent the so-called laboratory epidemics, and will permit at the same time the preparation of large quantities of anticholera serum and antiplague vaccine for use as required.

Sanitary Conditions

The federal sanitary authorities, as well as those of the state of Colima, have denied the occurrence of yellow fever cases in that state; but the newspaper correspondents continue to assert that cases of that disease have occurred there.

Malaria has presented itself in epidemic form in Iguala in the state of Guerrero, a great number of deaths having been reported. The same thing is happening in Tuxpan and its vicinity, in the oil region of the state of Veracruz, where there have occurred a number of cases of hemoglobinuric fever and several deaths.

The port of Tampico has established a quarantine against ships from Havana on account of the smallpox epidemic reported from that city.

Yellow fever continues to be present in Yucatan.

LONDON LETTER

LONDON, Oct. 8, 1919.

Rabies in England

Sir Stewart Stockman, chief veterinary officer of the board of agriculture and fisheries, has reviewed the position of rabies in this country in recent years in his annual report. The disease was eradicated in 1902 by the muzzling of dogs, and stringent measures were taken against its introduction by a period of quarantine covering the usual latent period of the disease. For sixteen years these measures have been effective, but conditions arising out of the war have allowed the disease to be introduced from the continent. It first appeared in Devonshire in September, 1918. A veterinary inspector was sent down to report on the mysterious deaths of dogs: laboratory investigation showed that they were due to rabies. An order was issued prohibiting movement of dogs out of Cornwall and Devon and enforcing muzzling in an area round Plymouth, which was afterward extended to certain districts in the counties mentioned. Up to the end of the year, 112 cases were observed. Immediate muzzling was effectively applied, and a decrease began in the number of cases that appeared monthly in the congested district of Plymouth. Fortunately, most of the cases were of the paralytic form, which curtailed the wanderings of the animals and their ability to bite. Another favorable factor was that for some unexplained reason the majority of the dogs took a westerly course and came up against the barrier of the sea. Arrangements were made for seeking out and treating human beings who were bitten. So far there has been no death from hydrophobia among twenty-one persons treated. Some of the distances covered by rabid dogs during their run are given. In one case it was 20 miles; but because it had bitten a man, the dog was shot, while still going strong. In another case the distance was 30 miles, when the animal was shot while still going strong.

The Mortality of the Tuberculous After Sanatorium Treatment

The Medical Research Committee has issued a report on the after-histories of patients discharged from the King Edward VII Sanatorium, which is important because of the large proportion of patients it was possible to trace. Of those discharged from the sanatorium since its foundation in 1914, only 3.5 per cent. were not traced. The present study is based on a record of seven years, covering 1,053 men and 1,064 women. Patients admitted in the incipient stage showed a mortality five or six times as great as that of the general population; moderately advanced cases between fifteen and twenty times as great; advanced cases nearly forty times as great. The smallest excess mortality was among patients discharged when the disease appeared to be arrested. The conclusion is drawn that residence in a sanatorium should be prolonged as long as possible. In the treatment, tuberculin proved disappointing. The method of administration was that advocated by Bandelier and Roepke, which approximates the "reactionless" method of Sahli and Trudeau. No appreciable effect, good or bad, could be traced.

The Ministry of Health: Consultative Councils

When the ministry of health bill was before Parliament, it was made clear that the ministry when established would seek advice on a variety of subjects within its province from advisory bodies chosen so as to include men and women with full practical knowledge of the questions on which they would be asked to advise. In the act, these bodies are called consultative councils. In the case of England they will consist of the consultative council on medical and allied services, the consultative council on local health administration, and the consultative council on general health questions. The councils will consist of twenty members each, including a chairman and vice chairman, but they may for special purposes appoint committees in order that they may have the cooperation of other persons so that particular problems will be considered with the help of those who have made them a special study. The membership of the consultative council on general health questions, which will also be twenty in number, is not yet completely settled, but at least half of its members will be women.

To the consultative council on medical and allied services will be referred such problems as the national development and extension of medical, nursing and midwifery work, and it is proposed that for some purposes it should, in accordance with the arrangement outlined above, act through committees more specialized than the council itself. Its members have been chosen from the fields of specialist medicine and surgery, general practice, both private and insurance, the public health services, the work of women in medicine (particularly the care of mothers and infants), hospital administration, and the application of other branches of science to medicine. It is intended that when questions are under consideration that specially affect the nursing and midwifery services of the country, the council should be assisted by the appointment of a committee consisting partly of its own members, but also including practicing nurses and midwives and other persons, not members of the council, who have devoted themselves specially to the study of nursing and midwifery questions.

The consultative council on national health insurance will, as its name indicates, consider problems of the work of approved societies arising in the administration of the cash benefits (sickness, disablement and maternity) by approved societies under the insurance acts. Its membership includes persons familiar with the work of all the principal types of approved societies.

The consultative council on local health administration will consider the administrative problems arising out of proposals for the development and extension of health services, and its membership includes persons familiar with the work of local authorities of various types, insurance committees and poor law guardians.

A New Journal

The first number of a journal entitled *Medical Science: Abstracts and Reviews* has appeared. It is produced by the Medical Research Committee and may, therefore, be regarded as a government publication. It is the successor of the *Medical Supplement to the Daily Review of the Foreign Press*, issued by the general staff of the war office, which made its appearance privately during the war in 1918 with the object

of informing our army medical staff of the inventions and discoveries of the enemy, though it soon became something wider, a review of foreign literature in general. After the war it ceased with the review. The present periodical will be published monthly, and its annual subscription price is $5. The first number, which appeared during the present month, contains 130 pages in good-sized type. Two thirds is occupied with reviews, and the remainder with abstracts. There are five departments which have been allotted to editors: surgery, Mr. W. G. Spencer; medicine, Dr. J. D. Rolleston; pathology, and bacteriology, Dr. W. Bulloch; neurology, Dr. F. M. R. Walshe; radiology, Dr. W. S. Lazarus-Barlow and Dr. Sydney Russ. The subjects of the reviews are: "Spina Bifida"; "Habitual or Recurrent Dislocation of the Shoulder"; "Repair of Tissues Destroyed by Injury and Disease"; "Cecostomy: Appendicostomy"; "Typhoid and Paratyphoid Fevers"; "Typhus"; "Influenza"; "Malaria"; "Dysentery"; "Cardiovascular Diseases"; "Alimentary Diseases," and "Lethargic Encephalitis." The reviews are all written by the editors and take the usual form of critical summaries of the recent literature of a subject. In some cases the writer has gone farther and brought old classical papers into the review, which thus tends to become an essay. The abstracts are in most cases also written by the editors. As the names would indicate, the work has been well done, but it by no means covers the field of medical literature, most of the specialties being excluded. The periodical should prove most useful to those engaged in research or interested in particular subjects, but, like most publications of the kind, very little of it is pabulum for the general reader.

PARIS LETTER

Paris, Oct. 16, 1919.

Provisions Made for War Orphans

The general federation of departmental associations of public schoolchildren has gained widespread recognition lately in view of the great work it is doing for the war orphans. The federation is composed of eighty-seven associations, which contribute to the support of 200,000 war orphans. During the year 1918 it has distributed to these orphans the total sum of 15 million francs.

The federation has also taken the initiative in founding the first sanatorium for heliotherapy *en altitude*, in France. This sanatorium will be for the treatment of patients suffering from surgical tuberculosis. Mme. L. Stern has already promised a million francs toward the project, but a much larger sum is needed before the plan can be realized. It is proposed to locate the sanatorium in the department of Pyrénées-Orientales (Southern France), in the vicinity of Font-Romeu.

The University of Strasbourg

Alsace having again become French, university circles are busily engaged in working out plans in order to make sure that the old University of Strasbourg shall not fall behind the standard to which it is entitled. The University of Strasbourg is, in fact, three hundred years old. While its official foundation dates from 1621, its earliest beginnings really extend back into the sixteenth century. Moreover, the authorities had not waited for the end of the war before considering this subject. As early as two months after the entrance of the French (Nov. 22, 1918), a course conducted in French was inaugurated. The other courses were soon organized, the Alsatian professors remaining at their posts, while certain professors were sent in temporarily; officers who were university instructors in civil life were also placed by the military authorities at the disposal of the faculties. In spite of difficulties, all the courses were soon conducted in French. From the beginning of hostilities, French had been absolutely prohibited by the German authorities and violations of this edict were subject to severe penalties. It required, therefore, a real effort on the part of all the instructors, even of young men who formerly had had a sufficient knowledge of French, in order to adapt themselves to instruction in this language.

However, that is not the most delicate question. The most difficult point to solve is, how the University of Strasbourg is to be assured the prosperous condition of affairs that it merits. Before the war it had more than 2,000 students, half of whom were from Alsace-Lorraine. Half the students were Germans; these it will, of course, lose. It will also lose, through the natural course of events and by force of natural attraction, the students from Lorraine who heretofore attended the University of Strasbourg, for these will doubtless be drawn toward Nancy. The result has been that this year Strasbourg has matriculated only 800 students, which seems to be the maximum that the local field is able to furnish. This number is too small to constitute a great university. We have in France half a dozen universities that have a larger attendance than this. The necessity therefore arises of providing the university with as many good courses and as many attractive features as possible, in order to induce a large contingent of students from outside of Alsace to take up their studies here.

Whatever may be done in the future, one may gain some idea of the present status of the medical faculty of this institution from the following:

There are twenty professorial chairs. The theoretical and practical instruction is given, then, by twenty full professors and twenty-four assistants (chargés de cours). This instruction is open to students who have completed their premedical studies, including physics, chemistry and the natural sciences, and to those who are preparing, according to the German system, for their state examination (Staatsexamen).

A special course of instruction will be established for students who are too far advanced in their medical studies according to the mode of instruction of the German faculties to continue according to the French plan without considerable loss of time. These students will be attached, in the capacity of licentiates (stagiaires), to some service of general medicine or to a service of general surgery. Furthermore, special courses in clinical medicine (Professors Bard and Blum), in clinical surgery (Professors Sencert and Stolz), in pathologic anatomy and in general pathology have been provided for these advanced students.

Medical Fees in Industrial Accidents

The schedule of medical fees provided by the law pertaining to industrial accidents dates back to 1905. Living conditions having completely changed, especially since the war, this schedule was no longer in harmony with the high cost of living. In view of this fact, the insurance companies, acting in accord with the delegates of the Syndicats médicaux de France, requested that Senator Bienvenu-Martin should serve as arbitrator in establishing a new schedule of medical fees in industrial accidents. The arbitrator so chosen has decided that the schedule in force at the present time shall be provisionally increased 100 per cent.

Exchange of Professors Between France and Italy

The plan for the exchange of professors between France and Italy has been definitely worked out. This project, which has been under advisement for several years, is based on the desirability of each of the two countries possessing an exact knowledge of the other, and on the thought that in this manner a sort of common intellectual atmosphere might be created between the two nations. Such a plan of exchange will give the French and Italian professors of all ranks definite missions outside of their native country, which will afford an opportunity for an extended sojourn during which a friendly nation can be studied at first hand. It is also thought that scientific research will be facilitated by this innovation.

French Society of Medical History

The Société française d'histoire et de médecine has resumed its custom of holding monthly meetings. At a recent meeting, the president, Dr. Jeanselme, professor of cutaneous and syphilitic diseases at the Faculté de médecine de Paris, presented a very interesting communication, illustrated by photographs, on the medical manuscripts preserved in the National Library. Professor Roger, dean of the Faculté de médecine de Paris, announced a plan for the creation of a historical medical museum, designed to serve as a depository of gifts received from the members of the society.

Wounds Received by Physicians at the Hands of Insane Patients

Among the risks connected with the medical profession there is one to which alienists are particularly exposed. Within the space of a few days, two physicians of Paris have had to suffer on this account. Dr. Rogues de Fursac, physician-in-chief of the asylum of Ville-Evrard, was seriously wounded by an insane patient who struck him in the region of the heart with a saw-file. The attendant who accompanied the physician on his rounds was able partially to parry the weapon, which inflicted, however, a deep lung wound, causing copious hemoptysis. A few days previously, Dr. Ducosté, physician-in-chief of the sanatorium of Ville-Evrard, had been severely wounded in the head by an insane patient who had leaped at him with the intention of cutting

his face with a broken bottle. In spite of the severity of their wounds, these two alienists do not appear to have suffered a mortal injury.

Meeting of Gynecologists and Obstetricians

The first meeting of the Association des gynécologues et obstétriciens de langue française was held recently. Among the six subjects discussed at the meeting (THE JOURNAL, Aug. 23, 1919, p. 622), three are of especial interest: (1) the serodiagnosis of pregnancy; (2) rising early from childbed, and (3) operative treatment of cancer of the cervix of the uterus.

The Serodiagnosis of Pregnancy

Dr. Bar, professor of clinical obstetrics at the Faculté de médecine de Paris, and Dr. Ecalle presented a report on the subject of serodiagnosis of pregnancy, in which they discussed the advantages derivable at the present time from recent discoveries in regard to biologic reactions produced when substances of fetal origin are allowed to penetrate the maternal organism. The complement fixation method possesses very slight practical value, they find. The dialytic method (the Abderhalden test) is deserving of greater attention. The blood serum of pregnant women when brought in contact with placenta always doubles the amount of placental albumin; the reaction is always positive. The reaction seems to be little influenced by the stage of the pregnancy. It appears first during the second month of gestation and disappears generally during the three weeks following accouchement. In extra-uterine pregnancies the reaction is always positive if the embryo is living; it may become negative if the fetus is dead. The intensity of the reaction is generally diminished if some form of intoxication is present. Besides, it is important to note that the blood serum of nonpregnant women gives a positive reaction in 33 per cent. of the cases. The diagnostic value of this method is therefore subject to important restrictions.

Furthermore, the attempt has been made to base the diagnosis of pregnancy on the increase of antitryptic power, but Bar and Ecalle do not think that this increase would be of any aid in the diagnosis of doubtful pregnancy, especially in view of the fact that the increase is definite and constant during the last months of pregnancy. The clinical advantages of these biologic reactions, difficult and delicate of control, as they are, seem rather slight and are not at all commensurate with the labor that they necessitate. All the obstetricians who took part in the discussion were virtually of the same opinion. All emphasized the fact that the researches in question, and particularly the Abderhalden test, were of an extremely delicate nature and subject to numerous sources of error.

Rising Early from Childbed

In his report on the subject of rising early from childbed, Dr. Bourcart of Geneva called attention to the disadvantages connected with patients keeping their beds too long after accouchement: they grow anemic, their abdominal muscles atrophy, the lochial discharge is hampered, the chances of infection are increased, uterine involution is retarded, intestinal function is arrested, and, finally, the secretion of milk is diminished. Early rising from childbed makes it possible to avoid all these disadvantages, since muscle action is better and the blood circulation is more active. It is understood that it is necessary that normal abdominal conditions be reestablished before a patient is authorized to get up. It is a very good practice to institute massage of the abdominal muscles before allowing the patient to leave the bed, as this promotes the return of normal intra-abdominal conditions.

Marriages

CAREY F MCCAFFERTY, Columbus, Ohio, to Miss Hazel Jacquelin Holcome of Portsmouth, Ohio, at Dayton, Ohio, October 17

MARK ALEXANDER GRIFFIN, Morganton, N. C., to Miss Neppie Clary Brothers, at Raleigh, N. C., October 8.

HORACE PALMER BECK to Miss Dorothy Bateman, both of Newport, R. I., at New York City, October 15.

HOMER P. MACNAMARA, Springfield, Ill., to Miss Mabel Palmer Cowdin of Chapin, Ill., October 27

ARTHUR HALE PARCHER, Ellsworth, Me., to Miss Winifred Ethel Hassall, October 8.

Deaths

Robert Taylor Wilson ● Baltimore; University of Maryland, Baltimore, 1881; aged 59; gynecologist to the Union Protestant Infirmary, Baltimore; consulting physician and director of the Hospital for Consumptives; surgeon to the Hospital for Women of Maryland; president of the Hospital Relief Association of Maryland; formerly assistant recording secretary to the Medical and Chirurgical Faculty of Maryland; died at his home, October 6, from heart disease.

Horace Perkins Mackechnie, Somerville, Mass.; Bellevue Hospital Medical College, 1879; aged 78; a member of the Massachusetts Medical Society; formerly principal of the Green Mountain Institute, and later of the Lincoln School, Somerville; once president of the Somerville Medical Society and a member of the staff of the Somerville Hospital since its organization; died at his home, October 17, from heart disease.

John Müller, Chicago; College of Physicians and Surgeons, Keokuk, Iowa, 1876; aged 78, for four years professor of languages at the University of Upsala, Sweden; interpreter at the Oriental Congress in Stockholm; lecturer at the Universita Populari, Milan, Italy; once lecturer and demonstrator of anatomy at St. Louis Medical College; died in Alexian Brothers Hospital, Chicago, October 24.

Junius Merwin Hall ● Chicago; College of Physicians and Surgeons in the City of New York, 1874; aged 68; for fourteen years a medical inspector under the health commissioner of Chicago, and on duty during the smallpox epidemic of 1880 and 1881; for many years a member of the attending staff of the Passavant Memorial Hospital; died at his home, October 30, from cirrhosis of the liver.

Albert C. H. Barge ● Astoria, N. Y.; Long Island College Hospital, Brooklyn, 1911; aged 32; assistant gynecologist to the German Dispensary, New York City, and attending gynecologist to Lenox Hill Dispensary; died at his home, October 23, from diphtheria

Orlando T. Maynard ● Elyria, Ohio; Eclectic Medical Institute, Cincinnati, 1875; Western Reserve University, Cleveland, 1884; aged 69; a member of the staff of the Elyria Memorial Hospital; died at his home, October 24, from heart disease.

Wellington Clark Ellis, Swiss, W. Va.; Barnes Medical College, St. Louis, 1910; aged 36; who was injured in an automobile wreck near Charleston, S. C., October 5, in which his wife was instantly killed, died from his injuries, October 9.

Edward Tracy Robinson, Chicago; Bennett Medical College, Chicago, 1906; aged 40; while motoring from Casper to Sheridan, Wyo., was instantly killed, July 25, when the car ran off a bridge, crushing Dr. Robinson beneath it.

Isidor Perlstein, Streeter, N. D.; Harvard University Medical School, 1912; aged 37; assistant physician to the Colonial Sanitarium, Rochester, Minn.; died at the Mayo Clinic, Rochester, September 23, from brain tumor.

Charles Edward Berkeley Duncombe, St Thomas, Ont.; Trinity Medical College, Toronto, Ont., L.R.C.P. (Edin.), 1883; aged 55; was killed instantly in a collision between automobiles at Brantford, Ont., September 14.

Franklin Levi Hope, Tunica, Miss.; Vanderbilt University, Nashville, Tenn., 1882; aged 62; for one term sheriff and chancery court clerk of Tunica County; died at his home, August 28, from acute dilatation of the heart.

Albert Christian Amundson, Cambridge, Wis.; New York University, New York City, 1882; aged 64; author of many articles in Norwegian on quackery; died at his home, October 20, from carcinoma of the liver.

John F. Mulholland, Jordan, Minn.; Northwestern University Medical School, Chicago, 1879; aged 70; a member of the Minnesota State Medical Association; died at his home, August 24, from pernicious anemia.

Christian Kachelmacher ● Fargo, N. D.; University of Christiania, Norway, 1897; aged 48; shot himself in his room at a hotel in Chicago, October 29, and died a few hours later in the Alexian Brothers Hospital

Thomas F. Leech, Downers Grove, Ill.; Jefferson Medical College, 1866; aged 78; a veteran of the Civil War in which he served as surgeon, U. S. Navy; died at his home, October 30.

● Indicates "Fellow" of the American Medical Association.

Francis Drennan Fletcher ● **Capt., M. R. C., U. S. Army,** Springfield, Ill.; Rush Medical College, 1902; aged 39; died in Liverpool, England, July 30, five days after an operation for perforating gastric ulcer.

Joseph Dozier Bancroft, Birmingham, Ala.; Vanderbilt University, Nashville, Tenn., 1894; aged 47; a member of the Medical Association of the State of Alabama; died, October 16.

Fletcher J. Farwell ● Friend, Neb.; Ensworth-Central Medical College, St. Joseph, Mo., 1909; aged 49; a member of the local school board; died at his home, October 10, from erysipelas.

Arthur M. Smith, Los Angeles, Calif.; University of Southern California, Los Angeles, 1898, aged 44; died in the Receiving Hospital, Los Angeles, August 19, from cerebral hemorrhage.

Elmer Barwis, Trenton, N. J.; University of Pennsylvania, Philadelphia, 1873; aged 69; a member of the Medical Society of New Jersey; died at his home, September 9, from angina pectoris.

Luther Holt, Iuka, Ill.; Washington University, St. Louis, 1887; aged 57; a member of the Illinois State Medical Society; died at his home, August 23, from valvular heart disease.

Angus MacDonald, St. Paul; McGill University, Montreal, 1863; aged 76; once president of the Ramsey County Medical Society; died at his home, October 11, from cerebral hemorrhage.

Roy Clyde Pynn, Delaware, Wis.; University of Illinois, Chicago, 1907; aged 35; died in St. Joseph's Hospital, Milwaukee, October 14, from valvular heart disease.

William W. Sanders, DeKalb, Texas; University of Tennessee, Nashville, 1868; aged 80; president of a bank in DeKalb; dropped dead in his bank, October 2.

J. F. Ullman, Simpson, Kan. (license, Kansas, 1901); aged 66; a practitioner for forty-four years; died in the Beloit (Kan.) Hospital, October 7, from nephritis.

Emmett H. Robertson, Dalles, Ga.; Memphis (Tenn.) Hospital Medical College, 1895; aged 49; died at his home, October 11, from an accidental poisoning.

Robert Green Holloway, Port Royal, Va.; University of Pennsylvania, Philadelphia, 1856; aged 86; a Confederate veteran; died at his home, October 14.

Willett Wells Brown ● Montclair, N. J.; New York Homeopathic Medical College, 1910; aged 36; died at his home, October 18, from pneumonia.

Harry F. Walsh, Crawfordsville, Ind.; Northwestern University Medical School, Chicago, 1898; aged 46; died at his home, September 14, from paresis.

J. D. Sasser ● Middleton, Tenn.; University of Louisville, Ky., 1876; aged 72; died in the Baptist Hospital, Memphis, Tenn., August 17, from nephritis.

Charles E. Paul, Litchfield, Neb.; St. Louis College of Physicians and Surgeons, 1902; aged 49; died at his home, October 8, from heart disease.

Martin Franklin VanBuren, Tacoma, Wash.; University of Michigan, Ann Arbor, 1871; aged 65; died at his home, October 11, from heart disease.

Carl Addison Allen ● Holyoke, Mass.; Long Island College Hospital, Brooklyn, 1874; aged 72; died at his home, September 11, from tuberculosis.

Simon M. Dubin, Philadelphia; University of Berne, Switzerland, 1896; aged 52; died at his home, October 15, from valvular heart disease.

August J. Beyer, Carmine, Texas; Memphis (Tenn.) Hospital Medical College, 1906; aged 37; died in a hospital in Austin, Texas, October 7.

William S. Mundhenk, Brookville, Ohio; Medical College of Ohio, Cincinnati, 1876; aged 68; died at his home, October 8, from heart disease.

Riley B. Womack, Prendergast, Tenn. (license, Tennessee, 1889); aged 75; was shot and killed in an affray near Pattie, Tenn., September 26.

Louis Joseph Roy, Indian Orchard, Mass.; University of Victoria College, Cobourg, Ont., 1880; aged 61; died at his home, September 30.

Adolph Ludwig Barcus ● Philadelphia; Jefferson Medical College, 1891; aged 55; died at his home, October 12.

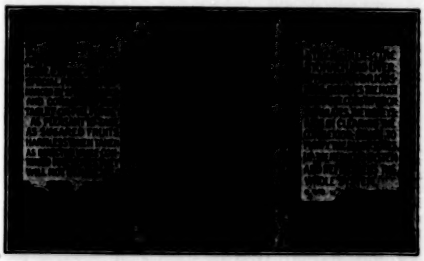
The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE FRAUD ON THE PUBLIC AND ON THE PROFESSION

SOME MORE MISBRANDED NOSTRUMS

Tubbs' Bilious Man's Friend.—The Tubbs Medicine Company, River Falls, Wis., shipped a quantity of "Tubbs' Bilious Man's Friend" in August, 1916. In March, 1918, an information was filed against the concern charging that the product was misbranded. The Bureau of Chemistry reported that analysis showed the preparation to be a water-alcohol solution of sugar and plant extractives (rhubarb) with a very small amount of aromatics. The preparation was falsely and fraudulently advertised as a remedy for liver and kidney troubles, rheumatism, backache, indigestion, scurvy, worms, piles, malaria, and as a preventive of appendicitis and rheumatism. It was further misbranded in that the label declared the presence of 20 per cent. alcohol when, as a matter of fact, the product contained only 13.2 per cent. of alcohol. In July, 1918, the company pleaded guilty and was fined $100. [*Notice of Judgment No. 6461; issued Oct 18, 1919.*]

Fruitatives.—In June, September and October, 1918, some 266 large packages and 388 small packages of "Fruitatives" were shipped from Fruitatives, Ltd., Ogdensburg, N. Y., into the state of Maine. The federal authorities declared the product misbranded, first, because the claims and pictorial devices on the label were false and misleading in that they conveyed the impression that the laxative properties of the product were due to the fruit or fruit extracts, "when in fact they were not"; second, that the nostrum was labeled as "antiseptic" which it was not; third, the "patent medicine"



bore the inscription "harmless" which "was false and misleading in that it was not harmless but contained an active poison nux vomica (strychnin)." The stuff was further declared misbranded because of the false and misleading claims of curative effect, such as:

"Strengthens the stomach and liver."
"Stimulates the kidneys."
"Tends to purify the blood; tones up the nervous system."
"Relieves . . . Recurring Headaches, Dizziness, Backache."

The government's cases came on for hearing in December, 1918, and February, 1919. The products were condemned and the court ordered that they should be destroyed by the United States marshal.—[*Notices of Judgment No. 6459 and 6477; issued Oct. 18, 1919.*]

Deerfield Water.—In August, 1916, the Deerfield Mineral Springs Company, Deerfield, Ohio, shipped a quantity of "'Triple Bi-Carbonate,' Deerfield Water" which was adulterated and misbranded. In March, 1918, an information was filed against the concern. The water was declared adul-

terated "for the reason that it consisted in part of a filthy, decomposed and putrid animal and vegetable substance." It was declared misbranded because the labels "falsely and fraudulently represented it as a cure for stomach trouble, kidney disease, uric acid poisoning and liver troubles when in truth and in fact it was not." It was further alleged to be misbranded because the quantity of the contents was not plainly and conspicuously marked on the package. In February, 1919, the company pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 6482; issued Oct. 18, 1919.*]

Robinson Spring Water.—This product has been the subject of previous seizures on the part of the federal authorities because of false claims made for it. In December, 1917, C. L. Bradley of Pocahontas, Miss., shipped twenty-five crates each containing one 5-gallon bottle of Robinson Spring

Water from Mississippi to Louisiana. In January, 1918, a libel for the seizure of this water was filed on the ground that it was misbranded. It was charged that the claims that this water was effective in Bright's disease, diabetes, gout, rheumatism, indigestion, etc., were false and fraudulent. In February, 1918, the court entered a judgment of condemnation and forfeiture and ordered that the product should be released on the payment of the cost of the proceedings and the execution of a bond.—[*Notice of Judgment No. 6467; issued Oct. 18, 1919.*]

Mederine.—In May, 1917, the Northern Drug Company of Duluth, Minn., shipped in interstate commerce a quantity of "Mederine" which was misbranded. In July, 1918, an information was filed against the company. The Bureau of Chemistry analyzed the product and reported it to be essentially a water-alcohol solution containing sugar, potassium iodid, methyl salicylate, salicylic acid, glycerin and laxative plant extractives. It was declared misbranded because it was falsely and fraudulently represented to be a cure for chronic constipation, indigestion, liver complaint, "catarrh," rheumatism, eczema, all blood and skin diseases, kidney trouble, scrofula, pimples, gout, "blood taint," etc., "whereas in truth and in fact it was not." In July, 1918, the company pleaded guilty and was fined $5.—[*Notice of Judgment No. 6483; issued Oct. 18, 1919.*]

Correspondence

"THE INFLUENCE OF DESICCATION ON HUMAN NORMAL ISOHEMAGGLUTININS"

To the Editor:—In THE JOURNAL, October 18, Karsner and Koeckert described the deterioration of normal human isoagglutinins within from two to three weeks and loss of group specificity within from three to five weeks, after drying of serums. Owing to the practical importance of this subject in view of the wide adoption of Sanford's method of using serum dried on cover glasses (THE JOURNAL, April 27, 1918, p. 1221), I believe that the results of additional investigations in this subject may be of some interest.

For several years, I have been under the impression not only that drying rabbit antihuman serum in filter paper after the method of Noguchi results in affording a good method for preserving and handling antihuman hemolysin, but also that the use of these papers yields less agglutination of the corpuscles in the conduct of complement fixation tests than serums preserved in the fluid state. During the past year, two of my students, Sands and West (Experiments on the Removal of Hemagglutinins from Rabbit Antihuman Sera, *J. Immunol.*, to be published), have found that drying these immune serums at room temperature usually results in some deterioration of the hemagglutinins, affording an explanation of the better results sometimes observed in the conduct of complement fixation tests with dried antihuman serum, owing to a reduction or removal of the very bothersome hemagglutinins.

Studies were then made on the influence on hemagglutinins and hemolysins in normal human serums for the corpuscles of persons and certain of the lower animals, of drying the serums at room temperatures on cover glasses as described by Sanford and in filter paper, as described by Hartman (THE JOURNAL, Nov. 16, 1918, p. 1658). The general results of this investigation (Kolmer, J. A.: The Influence of Desiccation on Natural Hemolysins and hemagglutinins in Human Sera, *J. Immunol.*, to be published), were to show that both hemagglutinins and hemolysins in normal human serums frequently undergo considerable deterioration within the first to the fourth day after drying. However, when human serums containing large amounts of these hemagglutinins were chosen for drying on cover glasses and properly preserved in a refrigerator as described by Sanford, satisfactory agglutination tests were observed over a period of two to three weeks at least. Unfortunately, I did not test the specificity of the agglutinins in dried serums, as have Karsner and Koeckert, and their observations along this line are unique and of considerable interest and worthy of further study. I am quite sure that it is unwise to rely on the results of negative hemagglutination reactions with dried serums in the typing of bloods unless preliminary tests have shown that specific agglutinins remain in the serum for at least a week after drying. The natural hemolysins in human serums for the corpuscles of persons and certain of the lower animals were found even slightly more susceptible to deterioration by desiccation.

While immune hemagglutinin, as that for human corpuscles, produced in rabbits as a result of immunization with human blood also undergo deterioration when the serums are dried, yet the amount present in the serum of a well immunized rabbit is so large that after the serum has been dried on cover glasses and the latter have been kept in a refrigerator, sufficient agglutinin escapes destruction to yield strong and very satisfactory results. The problem at hand is the production of these immune agglutinins specific for the four types of human corpuscles. I hope to be able to report my experiments in this field in the near future, but may state at present that multiple injections of any one type of corpuscles in rabbits results in the production of most agglutinin for these cells, and that the group agglutinins for the other types of corpuscles also produced may be removed by methods of absorption. These experiments offer considerable hope that it may be possible to produce specific agglutinating serums for all types of human corpuscles and thereby greatly facilitate the typing of bloods.

I may also state in this connection that the practice of relying on agglutination tests alone for the matching of bloods prior to transfusion is open to criticism. In the course of an investigation on hemolysins and agglutinins in normal human serums for the corpuscles of persons and the lower animals, conducted by M. E. Trist, A. M. Flick and myself (A Study of the Natural Thermolabile and Thermostabile Hemolysins and Hemagglutinins in Human Sera in Relation to the Wassermann Reaction, *Am. J. Syphilis*, to be published), it was found that hemolysins may be present in serums free of agglutinin for the same corpuscles, and it is possible that these isohemolysins may be responsible for some of the reactions following the transfusion of bloods free of agglutinins. For this reason I believe that tests preliminary to blood transfusion should include an examination for hemolysins as well as agglutinins, and dried serums are not suitable in tests for the latter. For these reasons, I agree

with Karsner and Koeckert that undried serums put up in small capillary tubes are better adapted for the grouping of blood than dried serums; but since both hemagglutinins and hemolysins in normal human serums are quite susceptible to heat, the serums should be kept at or near the freezing point.

JOHN A. KOLMER, M.D., Philadelphia.

"DESENSITIZATION OF PERSONS AGAINST IVY POISON"

To the Editor:—Apropos of Dr. Schamberg's article in THE JOURNAL, October 18, on the desensitization of persons against ivy poisoning: In the winter of 1907-1908 I was practicing at a sanatorium located in the foothills in Napa County, Calif., where nearly all the underbrush is poison oak. Naturally there were many cases of poisoning, some so severe as to menace life. One of the male nurses, who had formerly been very susceptible to the poison, had developed a high degree of immunity so that he could even grub out the roots of the plant with impunity. When pressed for the secret he related how he had begun by eating very small portions of the crushed berries and had gradually increased the dose until he could eat half a dozen berries at a time. He kept himself immune by occasionally eating some of the berries. With this as a basis we experimented with some of the help who could be persuaded to try the treatment. At first we used the berries and later the tincture of rhus toxicodendron. The results were very gratifying: many who were previously susceptible developed and maintained a good degree of immunity. The tincture seemed to work as well as the berries. We also found that, if susceptible patients, knowingly exposing themselves, would, within an hour after exposure, wash all exposed skin surfaces with alcohol (gasoline may also be used) they would escape the usual attack of dermatitis. This is probably due to the fact that the alcohol removes the poison from the skin before it has time to act. Since this experience I have used these two preventive measures in my private practice with very decided success.

F. F. ABBOTT, M.D., Ontario, Calif.

VITAMINS AND THE BALANCED DIET

To the Editor:—Dietitians have of late years stressed the fact that a balanced diet is necessary for the maintenance of good health; we are told the number of calories needed depend on the work or strain the person is enduring. These calories are represented by a certain amount of proteids, carbohydrates, fats, and vitamins (whatever they are). The fats and carbohydrates supply the fuel to run the machinery of the body, and the proteids and vitamins do the repair work. We are told there must be a certain amount of roughage, as found in the vegetable and undigested parts of grain, also that we must at least once a day eat some raw vegetables in the form of a salad. I have given the matter some thought, especially in the treatment of pellagrins, and, latterly, my treatment has been feeding the patient on what I supposed to be the correct principle of a balanced ration, as I was converted to the ideas mentioned above. Now, I am up in the air since reading in the *Saturday Evening Post* an article by the explorer Stephanssen, who states that for three years he and his companions lived in the arctic region on seal meat and seal blubber; he had no bread, vegetables nor fruits of any kind, neither did he have salt. Occasionally his diet was varied by killing a polar bear, but with that exception, men and dogs lived wholly on meat—not a man died and only two dogs. They came out healthy and strong and weighed more than when they began the trip. Will some dietitian explain?

J. M. BUCHANAN, M.D., Meridian, Miss.
Turner Hospital.

[COMMENT.—The pertinent comment of our correspondent illustrates the limitations of present day knowledge with respect to the subject of diet. Assuming, for the purpose of the argument, that the description of the explorer's sources of food in the arctic region is an adequate and reliable statement, it does not necessarily follow that the currently advocated principles of dietetics are incorrect. The need of energy, which is measured in terms of calories, is universally admitted. The food fuel can be supplied in the form of more than one food, the preference often being determined by the adaptability of the individual to the utilization of the particular mixture of nutrients furnished. The question of the need of "roughage," such as the vegetables and fruits provide, involves the mechanism of the emptying of the bowel. For most persons living under modern conditions there seems to be need of a mechanical stimulus to facilitate the movements; yet the behavior of the suckling infant deriving its nourishment from the readily digested milk must serve as a warning against sweeping generalizations as to the need of roughage for all persons at all times. Again there is no reason to assume that the arctic diet referred to is utterly devoid of vitamins. Many of the oils contain the fat-soluble vitamin. Water soluble (antineuritic?) vitamin is present in certain animal tissues, notably liver and other glandular organs. Meat is apparently not rich in this vitamin; but a liberal use of meat along with glandular organs sometimes classed as meat might supply enough of this essential. Who knows how much vitamin of any sort a human adult requires for mere maintenance? We are not arguing for the excellence of the diet reported nor can we assert that it is even a possibility without some accessory items which have perhaps failed to be enumerated in an explorer's hasty description. Yet it is not so radically untenable as might seem on first analysis. What our correspondent seeks to secure in his "balanced diet" might be obtainable in some measure and in far less advantageous proportions through rations of an entirely different character. Perhaps some dietitian can explain, as requested. We suspect that the reply will include an admission that much remains to be ascertained. In most cases the science of nutrition has merely succeeded in justifying dietary practices that were in vogue long before the principles of metabolism were being investigated.—EDITOR.]

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

AMERICANIZATION FROM THE PHYSICIAN'S POINT OF VIEW

To the Editor:—Can you direct me to literature on the subject of Americanization, from the physician's point of view?

T. C. HODGSON, M.D., East Berlin, Conn.

ANSWER.—The following references will be found of interest:

Medical Aspects of Immigration, THE JOURNAL, Dec. 30, 1911, p. 2142.

KNOX, H. A.: The Moron and the Study of Alien Defectives, THE JOURNAL, Jan. 11, 1913, p. 105.

Blanchard, W.: The New Immigration as It Affects Orthopedic Surgery, THE JOURNAL, Oct. 11, 1913, p. 1350.

Problem of Feebleminded Among Immigrants, THE JOURNAL, Jan. 18, 1913, p. 209.

Immigration Problem of the Future, THE JOURNAL, Jan. 30, 1915, p. 443.

JAMES, H., Jr.: Present Health Conditions in Europe and Their Relation to This Country in the Coming Months, THE JOURNAL, May 8, 1915, p. 1607.

The Carnegie Corporation has undertaken a national study of the methods of Americanization of immigrants in the United States. The work is to be done by ten divisions. The division on health standards and care is under the direction of Michael M. Davis, Jr., director of the Boston Dispensary, Boston, Mass.

Care of the Eyes.—Continued use of the eyes for a long time at close work is harmful to a child, even with perfect eyes. Therefore, it is very important to rest the eyes every few minutes whenever using them for close work, such as studying and writing. No work or study is important enough to be persisted in at the expense of injury to the eyes.—W. M. Carhart, *Pub. Health*, Michigan, September, 1919.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 11-12. Sec. Regular Board, Dr. T. J. Stout, Brinkley. Sec. Eclectic Board, Dr. Claude E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: New Haven, Nov. 11-12. Sec. Regular Board, Dr. Charles A. Tuttle, 196 York St., New Haven. Sec. Homeopathic Board, Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven. Sec. Eclectic Board, Dr. James E. Hair, 730 State St., Bridgeport.

DELAWARE: Dover, Dec. 9-11. Sec. Regular Board, Dr. P. S. Downs, Dover. Sec. Homeopathic Board, Dr. H. W. Howell, 824 Washington St., Wilmington. Pres. Medical Council, Dr. Henry W. Briggs, 1026 Jackson St., Wilmington.

FLORIDA: Tampa, Dec. 1-2. Sec., Regular Board, Dr. Wm. M. Rowlett, Citizens' Bank Building, Tampa.

ILLINOIS: Chicago, Dec. 1-3. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moiness, Dec. 16-18. Sec., Dr. Guilford H. Sumner, Capitol Bldg., Des Moines.

KENTUCKY: Louisville, Dec. 2. Sec., Dr. A. F. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, Dec. 1-3. Sec., Regular Board, Dr. E. W. Mahler, 141 Elk Place, New Orleans.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

MARYLAND: Baltimore, Dec. 9-12. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

MASSACHUSETTS: Boston, Nov. 11-13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

NEBRASKA: Lincoln, Nov. 12-14. Sec., Dr. H. J. Lehnhoff, 514 First Nat'l Bank Bldg., Lincoln.

OHIO: Columbus, Dec. 2-4. Sec., Dr. H. M. Platter, State House, Columbus.

SOUTH CAROLINA: Columbia, Nov. 10. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Galveston, Nov. 18-20. Sec., Dr. M. F. Bettencourt, Mart Texas.

VIRGINIA: Richmond, Dec. 9-12. Sec., Dr. J. W. Preston, 511 McBain Bldg., Roanoke.

Virginia June Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 17-20, 1919. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 49 candidates examined, 44 passed and 5 failed. Twenty-three candidates were licensed through reciprocity. Eleven candidates were licensed on Army and Navy credentials. One candidate was granted an osteopathic reciprocity license. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Bennett Medical College	(1914)	79.9
Johns Hopkins University	(1916) 89, (1918) 81, (1919) 83, 87, 88, 91	
University of Maryland	(1919)	78
Missouri Medical College	(1891)	76
Columbia University	(1919)	86
North Carolina Medical College	(1917) 83, (1918) 75, (1919)	79
Ohio State University College of Medicine	(1918)	82
Jefferson Medical College	(1915) 89, (1919)	82, 87
University of Pennsylvania	(1918)	87
Woman's Medical College of Pennsylvania	(1895)	77
Medical College of Virginia	(1917) 89, (1918) 85, 87, (1919)	75, 81, 85, 85, 87, 87, 87, 89, 89, 90, 92
University of Virginia	(1914) 92, (1917) 89, (1919)	81, 85, 86, 88, 90, 90, 91, 93
University of Catania	(1912)	77

FAILED

Medical College of Virginia (1901) 57, (1917) 67, (1918) 60, 63, 64

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Georgetown University	(1912)	Dist. Colum.
George Washington University	(1905)	Dist. Colum.
Howard University	(1913)	Ohio
Atlanta College of Physicians and Surgeons	(1913)	Georgia
Atlanta Medical College	(1895) Texas, (1916), (1917)	Georgia
Tulane University	(1905) Louisiana, (1915) Mississippi, (1918)	N. Carolina
Baltimore Medical College	(1894)	Alabama
College of Phys. and Surgs. Baltimore	(1903), (1907)	W. Virginia
Johns Hopkins University	(1913)	New York
University of Maryland	(1913), (1915), (1916)	N. Carolina
Columbia University	(1917)	New York
University and Bellevue Hosp. Med. Coll.	(1914)	New York
University of Pennsylvania	(1911) New York, (1915)	N. Carolina
University of Tennessee	(1915)	Tennessee
University College of Medicine, Richmond	(1911)	N. Carolina

LICENSED BY ENDORSEMENT OF CREDENTIALS

College	Year Grad.	Certificate from
George Washington University	(1907)	U. S. Army
University of Louisville	(1907)	U. S. Army
Johns Hopkins University	(1917)	U. S. Navy
University of Maryland	(1913), (1916)	U. S. Navy
Jefferson Medical College	(1909) U. S. Army, (1914)	U. S. Navy
Medical College of Virginia	(1917), (1918, 2)	U. S. Navy
University of Virginia	(1917)	U. S. Navy

Book Notices

THE AMERICAN ILLUSTRATED MEDICAL DICTIONARY. A New and Complete Dictionary of the Terms Used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Nursing, Veterinary Science, Biology, Medical Biography, Etc., with the Pronunciation, Derivation, and Definition, including much Collateral Information of an Encyclopedic Character; Together with New and Elaborate Tables of Arteries, Muscles, Nerves, Veins, Etc.; of Bacilli, Bacteria, Diplococci, Micrococci, Streptococci, Ptomains and Leukomains, Weights and Measures, Eponymic Tables of Diseases, Operations, Signs and Symptoms, Stains, Tests, Methods of Treatment, Etc. By W. A. Newman Dorland, A.M., M.D., F.A.C.S. Tenth Edition. Leather. Price, $5.50. Pp. 1201. Philadelphia: W. B. Saunders Company, 1919.

This new edition contains several hundred new words. Aside from this important fact, the dictionary remains much as usual—a complete and valuable work containing many convenient tables and charts, and a complete historical reference, for which the editor of the dictionary is indebted to Dr. Fielding H. Garrison. Unfortunately, a dictionary cannot discriminate but must define. At the very beginning of the book we learn that capital "A" is a symbol for *argon;* also abbreviation for *accommodation, acetum, anode* and *anterior;* and that little "a" is (1) an abbreviation for *accommodation, ampere, anode, anterior, aqua,* water, and *arteria;* (2) symbol for *total acidity.* This unfortunate condition deserves some remedy but, unfortunately, the dictionary can only point out the evil, not remedy it. In the same way other linguistic novelties may be noted until the final Z. Z.' Z." which concludes the book. However, this review might well conclude with a statement especially true concerning the book under discussion, but not always so true in many book reviews in which it frequently appears, namely, "This is an exceedingly instructive and interesting reference work."

CHRONIC TRAUMATIC OSTEOMYELITIS: ITS PATHOLOGY AND TREATMENT. By J. Renfrew White, M.B., F.R.C.S. Cloth. Price, $3. Pp. 144, with 37 illustrations. New York: Paul B. Hoeber, 1919.

This deals with the many difficult problems involved in the management of chronic traumatic osteomyelitis. The keynote of the book is thoroughness: a complete preoperative diagnosis, a thoroughgoing operation, and painstaking aftertreatment. Every phase of the disease, from beginning to end, is carefully considered, and the logic of each step in treatment is made clear by exposition of the pathologic condition it is intended to correct. We might desire a more critical discussion of the subject of bone regeneration, and much of value has been left unsaid concerning the classification, pathogenesis and roentgenologic diagnosis of bone sequestrums. As an example, it may be pointed out that a bone sequestrum, being dead, is avascular and does not undergo absorption; the surrounding living bone becomes atrophic from disuse and as a result of the inflammatory reaction; in addition, the sequestrum either lies in a lake of pus or is embedded in granulations; therefore, sequestrums tend to cast denser shadows in roentgenograms than adjacent living bone, and are surrounded by a zone which casts a light shadow in contrast to living bone and sequestrum. These very important characteristics are illustrated in the frontispiece, but apparently have escaped the author's attention. The book is, nevertheless, an excellent work and a practical contribution to medical literature.

APPLIED ANATOMY AND KINESIOLOGY. The Mechanism of Muscular Movement. By Wilbur Pardon Bowen, M.S., Professor of Physical Education, Michigan State Normal College. Second Edition. Cloth. Price, $3.50. Pp. 334 with 197 illustrations. Philadelphia: Lea & Febiger, 1919.

This book discusses the mechanism of bodily movement, and describes the principal types of muscular exercise, stating how they are performed, how they react on the body, and how they may be utilized in the prevention and cure of certain defects and deformities. It is a description of the mechanics of the most intricate and perfect machine ever devised—the human body. The book forms an excellent basis for work on physical training, especially for those interested in the orthopedic cure of physical defects.

Social Medicine, Medical Economics and Miscellany

SUICIDES IN PRUSSIA

The *Nederlandsch Tijdschrift v. Geneesk.* reproduces a table from a German medical journal showing the suicides in

	Men					Women				
	1911	1912	1913	1914	1915	1911	1912	1913	1914	1915
Hanging	3500	3446	3504	3498	2476	758	735	801	805	797
Suffocation	3	4	4	5	6	6	1	4	3	4
Drowning	745	724	844	731	494	576	641	734	647	626
Gunshot	1350	1550	1561	1350	891	99	99	87	105	77
Stabbing	30	30	21	23	15	3	3	1	2	3
Cutting neck	87	81	73	96	80	15	18	24	20	18
Opening artery	30	35	34	34	29	8	11	14	14	8
Cutting abdomen	—	2	4	2	1	—	—	—	1	—
Poisoning	304	311	329	263	162	284	292	329	295	241
Gas	95	118	140	106	120	112	136	168	189	255
Locomotive	156	200	228	185	118	58	48	61	44	61
Jumping from a height	84	98	82	111	74	118	117	139	134	109
Other means	11	15	7	18	79	20	21	23	15	13
Total	6204	6604	6831	6477	4554	2059	2119	2385	2250	2221

Prussia, 1911 to 1915 inclusive, and the means employed. The census of 1910 gave the population of Prussia as 40,165,219.

SIGNIFICANT CANCER STATISTICS

A valuable collection of statistics bearing on cancer has been published by the Metropolitan Life Insurance Company (*Journal of Cancer Research* 4:235 [July] 1919). The data were gathered during a six-year period of investigation in which 37,666 cancer deaths were recorded, a death rate of 70 per hundred thousand persons exposed. The peculiar value of these statistics lies in their detail, for they give the incidence of cancer in the various age periods of life, and make a distinction of sex and color of the population. A significant paragraph in the report, from the standpoint of general interest, is this: "Cancer death rates in this present experience, covering six calendar years, and relating in all to fifty million years of life exposed to risk, show no decisive upward or downward tendency for all age classes combined." According to the company's statistics, cancer was responsible for 5.9 per cent. of all deaths, and stood sixth in importance as a cause of death. The cancer death rate among whites for all ages was almost one and two thirds greater for females than for males; while, in the colored population, it was nearly three times greater for females than for males. These discrepancies do not begin to appear until the twenty-fifth year of life, and almost disappear after the age of 64, when the death rate for males and that for females becomes again nearly equal, in the whites; but among negroes the difference persists, though it becomes less marked. While white females have the highest death rate of any group, negro males have far the lowest. Among white males, cancer was the cause of 4.3 per cent. of all deaths; among white females, 8.5 per cent.; among colored males, 1.8 per cent., and among colored females, 5.2 per cent. Cancer of the stomach and of the liver caused 37.6 per cent. of all cancer deaths. As explaining the higher death rate among females is the fact that cancer of the female genital organs and of the breast occasioned 20.9 per cent. and 9.5 per cent., respectively, of the total cancer death rate. Cancer of the peritoneum, intestine and rectum caused 11.8 per cent. of the deaths. Great variations in the mortality at the several age periods of life were found to exist. Beginning at 3.7 per hundred thousand persons exposed, between the ages of 1 and 4, the cancer death rate falls to its lowest point, 1.3, between the ages of 10 and 14, increases slowly to 4.1 between the ages of 20 and 24, and then mounts rapidly to 15.7 between the ages of 25 and 34. In white females, the leap in this period is from 3.7 to 18.5, and then to 99.3 in the age period of 35 to 44. In the latter period, marked increases occur in the mortality from cancer of the female genital organs and of the breast. No substantiation was found for the current opinion that there is a strong association between a low economic status and a low cancer death rate. On the contrary, the mortality rate, at the ages at which the cancer rate is significant, decreases with an advance along the economic scale. This conclusion is made possible by the fact that the company has three different classes of policy holders, drawn from different economic strata of the population.

Medicolegal

Railroad Bureau Misinforming as to Quarantine

(Justesen v. Pennsylvania R. Co. (N. J.), 106 Atl. R. 137)

The Supreme Court of New Jersey says that, Oct. 10, 1916, the plaintiff's husband, by telephone, sought from the information bureau at the defendant's main station in New York advice as to whether the quarantine in the state of Virginia, which had been declared against infantile paralysis, had been lifted, stating that his wife and baby wanted to make a trip to Petersburg to see their people there. In reply to his question, he was told that the quarantine had been lifted, and that it would be safe for his wife to go. This information was incorrect, for the quarantine still prevailed. Acting on it, however, the plaintiff boarded a Pullman car attached to the defendant's train, at the station in Newark. This car went through to Petersburg, being hauled over the defendant's road to Washington, at which point it was transferred to the Richmond, Fredericksburg & Potomac Railroad Company. After the car was transferred to the latter company and was attached to its train, its conductor entered the car and told the plaintiff that she and her infant child would have to leave the train, as it was against the law to take children into Virginia, and this she did. She claimed that the distress and mortification of her expulsion so affected her that she became sick to such an extent that she was confined to her bed, on her return home, for two weeks, and was unable to leave the house for two months. But, assuming that the information bureau was acting within the scope of its agency in informing the plaintiff's husband as to the condition of the quarantine laws of the state of Virginia, the court holds that the defendant company could not be held responsible for the illness of the plaintiff, for two reasons: In the first place, if it was produced by her improper removal from the car, that was a matter between her and the other railroad company. In the second place, although physical sickness may result from mental worry produced by the wrongful act of another, it is not the necessary or natural consequence of the mental condition, and so cannot be said to be the proximate consequence of the wrong done. The only liability resting on the defendant, assuming that such liability existed at all, was to restore to the plaintiff the money which its inaccurate information caused her to expend, there being no suggestion that the time wasted by her on her abortive trip produced any other financial loss.

Exhibiting Injured Limbs to Jury

(Turnbow v. Kansas City Rys. Co. (Mo.), 211 S. W. R. 41)

The Supreme Court of Missouri, Division 2, in affirming a judgment in favor of the plaintiff, a boy 3 years old, for the loss of both feet, conditional on the amount of the judgment being reduced by remittitur from $30,000 to $25,000, which was done, holds that there was no error in permitting the plaintiff to exhibit his injured limbs to the jury. The court says that one of the facts at issue in the case was whether further amputations of the injured limbs would be necessary. The surgeon who performed the operation when the plaintiff's feet were amputated testified that the limbs were amputated just above the ankle joint, and that, owing to the fact that the bone grew faster than the surrounding skin, the bone now pressed against the skin at the place of amputation; that this was a frequent occurrence in cases of this kind among persons under 18 years of age; and that it would be necessary later to operate again on each leg and remove about 2 inches of the end of the bone. The surgeon stated that the pressure

of the end against the skin was plainly visible. Thereafter the plaintiff's injured limbs were exhibited to the jury that the latter might see the exact appearance of the ends of amputated limbs. The court has no hesitancy in saying that the exhibition of the injured limbs to the jury did not constitute error. The general rule is that evidence of this kind is admissible, when material to the issue, subject, however, to the right of the trial court in the exercise of a sound discretion to prevent unnecessary abuses in the offering of such evidence.

Charges Filed in Time for Revocation of License

(Lewis v. State Board of Medical Examiners (Ga.), 99 S. E. R. 147)

The Court of Appeals of Georgia, Division 1, in this case wherein defendant Lewis appealed to the superior court from an order of the state board of medical examiners that his license to practice medicine be revoked, holds that the evidence in the case demanded the verdict directed by the court against the defendant, and affirms the judgment of the superior court ordering that the license of defendant Lewis, authorizing him to practice medicine in Georgia, be revoked and his name removed from the record of all and any clerk of the superior court of the state. The court of appeals says that the defendant had been convicted of a misdemeanor, larceny after trust, in that when he had been intrusted with $5 by a woman to purchase a railway ticket for her, which cost $1.30, he failed and refused to return the balance. This was the only charge that the board relied on in the superior court, and it was on this charge that the verdict against the defendant was directed.

Acting under the Act of 1913, the state board of medical examiners, June 12, 1916, after hearing evidence on certain charges against the defendant, one of them being that he had been convicted of a crime involving moral turpitude, found the charges to be true, and ordered that his licence be revoked and his name removed from the records of the clerk of the superior court. The defendant, on the same day, entered his appeal, which was duly certified by the secretary of the board and filed in the office of the clerk of the superior court, June 16, 1916. So far as the record showed, there was nothing to indicate that the case was ever called until it "came on regularly for trial at the October term, 1918," of the superior court, at which time the board presented certain written charges against the defendant, which bore an entry of filing by the clerk of the court, dated April 8, 1918. The defendant contended that this did not meet the requirements of the law; but the court of appeals holds that there was no error in refusing to dismiss the written charges preferred by the board against the defendant, on the ground that they were not filed at the proper time. No time is fixed by the statute when the board shall prefer written charges after an appeal has been entered by the defendant. It was argued that the same rule should apply here as in cases of an award by arbitrators; but there would appear to be a clear distinction between the effect of such an award and the decision of the state board of medical examiners. The award by arbitrators is binding on no one, and is of no legal effect whatever, until properly returned and entered on the minutes of the proper court, while the decision by the state board of medical examiners is a judgment within itself, and is final unless set aside on appeal.

Nor did the court err, there being no insistence that the judgment in the criminal case was void, in refusing to permit the defendant to introduce evidence for the purpose of showing that he was not in point of fact guilty of an offense involving moral turpitude, of which he had been convicted, since the judgment of a court of competent jurisdiction cannot be impeached collaterally, but is to be taken and held as a valid judgment until it is reversed or set aside by the court rendering it.

The writ of error in this case was originally filed in the supreme court, and, that court having by formal order transferred it to this court, the transfer of the case was equivalent to a holding by the supreme court that the constitutional questions which the defendant attempted to raise by the writ were not properly made.

Society Proceedings

COMING MEETINGS

American Child Hygiene Association, Asheville, N. C., Nov. 11-13.
Southern Medical Association, Asheville, N. C., Nov. 12-13.
Southern Minnesota Medical Assn., Mankato, Dec. 1-2.
Society of American Bacteriologists, Boston, Mass., Dec. 30-31.
Southern Surgical Association, New Orleans, Dec. 16-18.
Western Surgical Association, Kansas City, Dec. 5-6.

MINNESOTA STATE MEDICAL ASSOCIATION

Fifty-First Annual Meeting, held in Minneapolis, Oct. 1-3, 1919

The President, DR. GEORGE DOUGLAS HEAD, Minneapolis, in the Chair

Protein Sensitization in Asthma and Hay-Fever

DR. A. H. SANFORD, Rochester: A group of protein sensitized persons consisted, first, of those who were sensitive to animal emanations, in which group there were twenty-eight persons, the largest number of reactions being to horse dander; and secondly, of a small group sensitive to chicken feathers. Three of these were likewise sensitive to egg white, egg yolk and whole egg, and also to the meat of chicken. The food asthmatics, numbering 100 persons, were subdivided on the type of reaction, although many persons had little in their history to indicate that the particular reaction had much to do with their asthmatic condition. The most improtant group, comprising exactly one fourth of the members of the food group, were those who reacted to grain. Ten of these twenty-five were placed in a doubtful group, three because of their age, as asthma coming on after 40 is not usually due to protein sensitization, and the other seven because of repeated evidence of bronchitis which made it seem that infection was the chief factor, although food cannot be excluded entirely. Fifteen of the twenty-five were definitely sensitized to the cereals named. Wheat proteose is the most common offender of this group, although rye occasionally gives reactions. The attempt to use "war bread" was mentioned as bringing to light the fact that there were many food asthmatics. While quite a number of patients were sensitive to vegetables, there were really very few foods of this sort that seemed to have much influence on the asthma. Potato is probably one of the worst offenders among the vegetable group, and some patients are relieved of their symptoms by omitting this vegetable from the diet. Fruits have very little to do with asthma, although banana occasionally gives marked reactions, and one case was undoubtedly due to this fruit. One of the most important groups contains the persons who develop asthma after hay-fever. These persons are classed among the seasonal asthmatics, as the pollens of certain weeds, notably ragweed, and occasionally timothy, are responsible for their hay-fever. Food asthmatics are best handled by eliminating particular foods from the diet. Those sensitive to animal emanations may be desensitized with doses of the offending proteins, and the hay-fever patients are treated with a series of injections of extracts of the particular pollen, starting twelve weeks before the onset of their hay-fever. Asthma should not be treated without first considering the patient's history and whether he may be sensitive to some particular protein.

Treatment of Dermatologic and Syphilitic Cases in the University of Minnesota Dispensary

DRS. S. E. SWEITZER, JOHN BUTLER and H. G. IRVINE, Minneapolis: The scheme of treatment of syphilitics admitted to the University of Minnesota dispensary is determined by the stage or duration of the disease. We recognize (1) early primary syphilis with the chancre as the only symptom and a negative Wassermann reaction; (2) early syphilis with a chancre and glandular adenopathy and a positive Wassermann reaction; (3) evidence of secondary or tertiary stage of syphilis; (4) congenital syphilis; (5) early or late nerve involvement; (6) tabes and paresis, and (7) visceral syphilis. In cases of established secondary syphilis or the tertiary stage of the disease, three years' treatment followed by from one to two years' observation is recommended. During the

first year, from twelve to eighteen doses of arsphenamin are given in courses of from four to six injections given at intervals of from three days to a week. Between the courses of arsphenamin are given three courses of injections of mercuric salicylate. These injections are given twice weekly. In cases of hereditary syphilis, the arsphenamin and mercury treatment is used as in the acquired cases, but the arsenic dosage is necessarily smaller, from 0.2 to 0.4 gm. being used. The mercuric salicylate intramuscular injections or internal medication is not considered practicable in these cases. Mercurial inunctions are used almost exclusively. Cases of early or late nerve involvement, syphilis of the special sense organs, tabes, paresis and visceral syphilis are treated individually. Most of these patients require intensive treatment over a long period of time. The diagnosis and energetic treatment of the early case of syphilis should be emphasized, the proper interpretation of the Wassermann test should not be forgotten, and the need of a lot of both arsphenamin and mercury for the established case is imperative.

Treatment of Tuberculosis of the Spine

Dr. H. W. Meyerding, Rochester: Of 100 patients operated on by a bone graft operation, 48 per cent. had had symptoms from one to four years; 22 per cent. gave a history of trauma; 27 per cent. had tuberculosis in other organs, the lungs, joints, testicles, peritoneum, etc., before symptoms were manifest in the spine. Following operation, patients are kept in bed on an average of six weeks on a Bradford frame or a plaster-of-Paris cast, followed by a Taylor brace to be worn for from six months to one year. However, no definite rule can be laid down as to the period of recumbency. This must be left to the judgment of the attending surgeon. General hygienic care and the Rollier sunshine treatment are advisable. Children under 5 years of age, and adults with complications such as pulmonary lesions, sinuses, etc., are poor surgical risks. Eighty-six per cent. of the patients were relieved of clinical symptoms; 8 per cent. died; 3 per cent. have not been heard from, and 3 per cent. are unimproved.

Surgery of the Kidney

Dr. E. S. Judd, Rochester: Of nineteen cases of pelvic kidney, nine patients required operations because of a pathologic condition of the kidney. In the other ten cases, the kidney was apparently functioning normally. The position of the kidney is usually not an indication for operative treatment. In a few cases in which intermittent hydronephrosis is suspected, surgical treatment may offer some aid, but the results may be none of the best. In cases of injury to the kidney in the presence of severe hematuria, early exploration is advisable, as infection may result if procrastination is allowed. Repair of torn tissues or nephrectomy may be the operation of choice. In considering hydronephrosis, the complete ligation of the ureter causes ultimate atrophy of kidney and in no case has a hydronephrosis followed this ligation in my experience. Kidney tissue will recover and function normally after release of a ureter that has been ligated for fourteen days. The usual cause of hydronephrosis is a hindrance to flow of urine over a long period. This may be due to the altered position of the kidney or to the pressure of an anomalous vessel. Surgery should be advised with reserve in these cases; if there is mechanical deformity of the ureter, however, a plastic operation may be indicated, although the results are not always satisfactory. The hematogenous infections of the kidney usually demand surgical treatment. Pyelitis and pyelonephritis are usually bilateral. Drainage or nephrectomy may be indicated. Pyonephrosis may result from infection of a hydronephrosis or in association with stone; it also occurs bilaterally in prostatic enlargement and bladder stone. If it is unilateral, nephrectomy is indicated; if it is bilateral, drainage and removal of the stone from one kidney at a time appears to offer the best results. In tuberculosis of the kidney, if the disease is confined to one kidney, nephrectomy should be done. In bilateral cases, if one kidney is only slightly involved, the more diseased kidney should be removed. If active tuberculosis exists in the kidney, a healed or fairly active lesion in the lung is not a contraindication to removal. Benign tumors are rare. Polycystic disease is more frequent, but is not essentially surgical. Experience with the Rovsing operation has not been satisfactory. Early removal of hypernephroma offers a fair prognosis. In advanced cases, radium should be employed. The carcinomas and sarcomas in children will generally recur if removed. Nephrectomy was performed on 239 patients, with a mortality of 2.9 per cent. Three of the deaths were in cases of tuberculosis, one of chronic nephritis and bilateral pleuritis, two of pyonephrosis, and one each of hemorrhage; thrombophlebitis, infection and metastasis and acute nephritis.

Hypertension in Its Clinical Aspects

Dr. F. J. Hirschboeck, Duluth: The diagnosis between essential hypertension and renal hypertension is often very difficult, particularly in the ambulant cases usually encountered in private practice. The factors of special importance in designating a case as renal are the higher values in the pressure readings, the degree of anemia, the frequent occurrence of gastric and respiratory symptoms, and lastly, the positive evidence of one or more of the renal functional tests, or the test for nitrogen retention products and more typical objective signs, such as albuminuric retinitis and albuminuria hyposthenia. Moderate hypertension usually occurs in hyperthyroidism and in pituitary disease. It is characterized also by increase in the pulse pressure. It is difficult to say whether cases at the menopause are due to disorders of the glands of internal secretion or whether the time of occurrence is merely coincidental, and that it may be due to other causes. We are certain, however, that there is nothing uniform about the elevation of blood pressure in women at the menopause. In mitral and aortic insufficiency there is usually an increase in the blood pressure, and the increase in the pulse pressure of aortic insufficiency is strikingly demonstrated when these cases are studied. Asthma, in our experience, has not shown any cases of hypertension. Diabetes per se is probably not a cause of hypertension. In lead poisoning we find a uniform elevation in our readings. In the decrescent type of arteriosclerosis there is an elevation of blood pressure in a small percentage of cases, but renal complications are the rule. In syphilis, although there are certain features, such as intracranial disease, aortic insufficiency and nephritis, which make for high pressures; yet there is a certain percentage of cases in which there is an elevation of blood pressure, moderate in degree, and not ascribable to one of these lesions. We cannot say dogmatically to what this is due; nevertheless, certain cases of syphilis show a hypertension aside from the causes mentioned.

Tuberculosis of the Thyroid

Drs. W. A. Plummer and A. C. Broders, Rochester: In seven cases of tuberculosis of the thyroid, the diagnoses were made following thyroidectomy. Three of the patients had symptoms, physical findings, thyroid signs, and basal metabolic rates typical of high grade exophthalmic goiter. Microscopic sections showed much parenchymatous hypertrophy, as is usual in exophthalmic goiter. Two patients had mild but definite hyperthyroidism, one probably had hyperthyroidism, and one had no symptoms or findings indicative of exophthalmic goiter. The latter four patients had small, hard, nodular glands suggesting carcinoma of the thyroid. Microscopic examination of three of these disclosed a great deal of gland destruction with a slight amount of parenchymatous hypertrophy. The last patient had no symptoms of hyperthyroidism owing to the very extensive destruction of the parenchyma of the gland. The striking point in these cases is that in six of them signs of hyperthyroidism were definite. The greater the tuberculous involvement, the less severe the toxic symptoms. There was nothing decisive to indicate that tuberculosis preceded the hyperthyroidism. No other foci were found on examination. One patient had myxedema following operation.

Treatment of Empyema by a Closed Method

Dr. Frank M. Manson, Worthington: A 7 mm. trocar with cannula is introduced into the pleural cavity. The

trocar is withdrawn, leaving the cannula in place until a 24 F. catheter, with one terminal and two lateral openings, has been introduced. The pus is withdrawn with a 30 c.c. Luer syringe. Then, from 20 to 50 c.c. of surgical solution of chlorinated soda are injected into the cavity and sucked in and out to dissolve the fibrinous masses. The cavity is then nearly filled with this solution, which remains for from ten to thirty-one minutes. The treatment is repeated from four to six times in the twenty-four hours, the frequency depending on the condition of the patient and the rapidity with which the pus accumulates. The tube remains clamped except when aspirating or injecting. All cases are controlled by laboratory count. When the discharge becomes sterile to culture and the cavity has diminished to a capacity of 15 or 20 c.c., the tube is withdrawn and the opening allowed to heal. Of forty-three patients treated by this method, all were cured; none had to have secondary operations.

Palliative Treatment Versus the Radical Treatment of Trifacial Neuralgia

DR. A. W. ABSON, Rochester: The average duration of the trouble in 310 patients was seven years. There were fifty-two ophthalmic division involvements; 237 supramaxillary division involvements, and 228 mandibular division involvements; 805 alcohol injections were administered, and seventy-one extractions of teeth, ninety-three avulsions or resections of peripheral branches, eleven nasal operations, and eleven mandible operations were done. Ninety-five patients submitted to radical operations; nine of these were ganglionectomies; four were removals of gasserian tumors; forty-nine were avulsions or resections of the posterior root, and thirty-three were incisions of the posterior root. Five of the radical operations were secondary, being due to incomplete division of the posterior root at the primary operation. Of the four deaths, two were due to hemorrhage, one to meningitis and one to senility. In making a summary of the results, it is found that in this group of 318 patients there was a total of 1,008 palliative surgical treatments, including 805 alcohol injections and 203 other palliative procedures. Since only ninety patients have had the radical operation with a consequent relief from pain, the remaining 228 are still seeking relief by temporary methods. I am convinced, after dividing the posterior root in seventy-four cases, that, after one or two alcohol injections, the radical operation is indicated in all operable cases in preference to the continuation of palliative procedures.

(To be continued)

DELAWARE STATE MEDICAL SOCIETY

Annual Meeting, held in Dover, Oct. 13 and 14, 1919

The President, DR. L. S. CONWELL, Camden, in the Chair

Diseases of the Bile Ducts and Gallbladder

DR. I. J. MACCOLLUM, Wyoming: Micro-organisms are not found in normal bile; and when bile contains bacteria, a state of disease exists. This diseased state may not give rise to active symptoms and lead to immediate deleterious influences, but is a constant source of danger should there develop an intercurrent disease or should the person's vitality become lowered by overwork, nervous or mental exhaustion, or some gastro-intestinal disturbance. All inflammatory processes of the gallbladder predispose to gallstones. Bacteria, bile salts that have been thrown out of solution and crystallized, a nidus of desiccated epithelial cells, a plug of mucus and inflammatory débris may serve as a foundation on which gallstones are formed. A gallstone may lie dormant in the gallbladder for years and never give rise to any perceptible symptoms unless there is an associated inflammation; or unless the duct becomes occluded and stagnation occurs; or unless, for various reasons, a stone enters or starts to enter a duct. The diagnosis of cholelithiasis is not difficult in some cases; but in those cases in which the symptoms are vague and ill defined, the physician is taxed to the limit. The treatment consists of a well regulated diet with absence of rich and fat foods, outdoor exercise, vegetables, large quantities of water, cold baths, and alkalis internally. The bowels should be kept regular, and systematic habits encouraged. Operation should be performed for repeated attacks of colic even if there is no jaundice present.

DISCUSSION

DR. JAMES A. DRAPER, Wilmington: In the majority of cases of gallbladder diseases, a careful examination will give evidence of previous inflammation of the appendix. Frequently it follows typhoid. In all cases of hydrops, the gallbladder should be removed. These cases are practically always caused by a stone impacted in the cystic duct. Drainage, as a rule, is unsatisfactory. The stone remains impacted, and chronic signs follow the drainage operation. The only satisfactory treatment in these cases is cholecystectomy and complete removal of the gallbladder.

Tuberculosis

DR. ALBERT ROBIN, Wilmington: Patients with tuberculosis may be classified into two groups: those having tuberculous infection without symptoms, and those who have tuberculous disease with certain definite manifestations. In other words, undoubtedly many persons are infected with tuberculosis whose immunity is sufficient to keep the pathologic process in abeyance. Such individuals are not aware of their infection, which is at times discovered in the course of an examination for some other disease. The group that interests us is that in which the patient presents a symptom with or without physical signs. It is in this group that a careful study of the symptoms will greatly minimize error. Of the symptoms that are most suggestive are: functional atonic dyspepsia; hyperchlorhydria; nausea with or without vomiting, or intestinal indigestion with diarrhea; persistent tachycardia; loss of weight and, generally, a slight elevation of temperature. In my experience, the majority of patients with early tuberculosis present these symptoms long before the development of cough, night sweats and localized physical signs. Tuberculosis is essentially a toxemia. Almost at any stage, the physical signs connoting the underlying pathologic lesions may be present and should be looked for. Frequent examinations of the sputum should be made, the discovery of tubercle bacilli being conclusive evidence of the existence of tuberculosis. Failure to find tubercle bacilli, however, does not exclude tuberculosis, and one should not rest content on negative findings. In the vast majority of cases the roentgen ray will furnish definite evidence. The diagnosis of tuberculosis in children offers few difficulties. When a child is suffering from malnutrition, has a slight fever and is otherwise below par, the chances are 6 to 4 that the case is one of tuberculosis. There is no specific treatment of this disease, and any physician who employs a supposed specific treatment with a promise of cure is obtaining money under false pretenses. What is new and of paramount value in the treatment of tuberculosis is the growing conviction that absolute rest is the only "specific" treatment. As one author puts it, "Rest in proportion to the severity and duration of the symptoms." Rest, either absolute or relative, depending on the degree of activity, should be carried out for weeks or months.

DISCUSSION

DR. JOSEPH W. BASTIAN, Wilmington: A few simple things in the early diagnosis of tuberculosis are the slight rise of temperature in the evening, the increased pulse rate and the stomach disturbances. Many people will go along for months complaining of being in a "run down" condition, but practically not manifesting a detectable lesion. In regard to the roentgen ray, there are many other conditions that will make shadows that will look so much like a tuberculous area that, even with an expert reading the picture, we can take that only as a link in our chain of evidence.

DR. J. C. COOPER, Dover: The army reports show that out of nearly 3,000,000 men subjected to examination, 69,000 were pronounced tuberculous. Men who are physicians in the real sense of the word, and not politicians, should be put on the boards, and then Delaware will know something regarding what tuberculosis really demands. The North American

Indians have practically been blotted out by tuberculosis. The white man will share the same fate if he sits down, as he is now sitting, and lets a lot of ignorant politicians run him and ruin him.

Dr. Albert Robin, Wilmington: If one puts the patient with fever and rapid pulse to bed for six weeks and if at the end of six weeks the temperature does not become normal and the pulse does become normal, he will never improve. That is a practical point in prognosis.

Dr. L. S. Conwell, Camden: It is as impossible for the state board of health to look after the sanitary conditions in every part of this state as it would be for one lamp to light up a twelve room house. If the physicians of the various towns will put into effect cooperation with their local boards of health, they can do a great deal more toward correcting sanitary conditions and curbing the streams of infection than they can by mixing it up as having anything to do with politics.

Roentgen-Ray Treatment of Hyperthyroidism

Dr. George C. McElfatrick, Wilmington: Of all the measures employed in the treatment of goiter, none have been so successful as carefully applied doses of the roentgen ray. I give large doses but am careful not to get a dermatitis. The advantages of the treatment are: There are no fatalities. There is no scar as after operation. It does not interfere with the patient's occupation. It is painless and causes very little inconvenience to the patient. If unsuccessful, an operation may still be performed with less risk because of the favorable action of the roentgen rays on the thymus glands.

Autointoxication

Dr. Cecil De J. Harbordt, Dover: A vast majority of the diseases found in childhood, outside of the eruptive fevers, are caused wholly by the retention of toxic material in the stomach, or bowel. Chronic liver troubles are more often than not due to autotoxins, as are many of the more serious renal affections. The numerous forms of dyspepsia and indigestion are all caused more or less by autotoxemia. Even in cases of so-called nervous indigestion, were it not for the absorption of toxins the nerves would not be affected sufficiently to produce the nervous phenomena causing all of the distressing symptoms of this troublesome condition. Treatment in all intestinal and stomach diseases is to clean out the entire tract thoroughly and to place the patient on a proper diet in order to avoid a recurrence of the trouble. It is one thing to clean out the alimentary canal and quite another to keep it clean and free from putrefactive material. Many manufacturers claim to have a "cure all" for digestive and fermentative troubles, but the fact remains that there is not one single drug or combination of drugs that is suitable for every case, for each case is a law unto itself, and calls for some special drug. It is often a most difficult matter to find the cause, the exact poisons that are producing the autointoxication. It may take a long study of the case and its symptoms before the seat of the trouble is found; but until one finds it and removes it, one cannot expect to effect a cure.

Dermoid Cyst in a Child

Dr. Samuel C. Rumford, Wilmington: M. D., a girl, aged 10½ years, frail looking but always well, except for the minor eruptive diseases of childhood, came under my observation with the complaint that at times during the past three months she had suffered from cramps and vague pains in the lower abdomen. These increased in frequency and severity. Five weeks before, her mother noticed a mass in the abdomen. On examination I found an irregular shaped tumor the size of an orange above the symphysis and to the left, freely movable, with areas of fluctuation and hardness, and only slightly tender. Vaginal examination was impossible, and by the rectum no information of value was obtainable. At operation, I found the tumor to be a dermoid cyst of the left ovary, shaped like a potato and measuring 6½ by 3 inches at its greatest diameters. It was freely movable and without adhesions, but the pedicle showed one twist to the left. In the growth of this cyst and its gradual rise out of the pelvis into the abdomen, it had pulled on the left broad ligament until the uterus was only a thin band of muscle, while the cervix was the size of a lead pencil and 2 inches long. The right broad ligament was only slightly stretched, and that tube and ovary normal. After ligating the pedicle, I removed a long appendix. The child made an uninterrupted recovery. Inside this cyst we found the usual oily liquid, and growing into it one of the so-called "dermoid plugs," containing a lump of matted hair and a small fragment of bone.

MEDICAL SOCIETY OF THE STATE OF PENNSYLVANIA

Sixty-Ninth Annual Meeting, held in Harrisburg, Sept. 22-25, 1919

(Continued from page 1389)

Impressions Resulting from Experience in the Pennsylvania Legislative Session of 1919

Dr. Frederick L. Van Sickle, Olyphant: Every legally qualified practitioner of medicine must become interested in organized medicine. There is needed a united and strong organization of the medical profession which shall have an influence on constructive legislation. It would seem desirable that the pulse of the medical profession be noted prior to the passage of certain acts relative to the department of health and of education, that their application with less friction be possible. Of the important subject of publicity regarding legislative opinion, such publicity should come from our own ranks; we should maintain a bureau to furnish the press with properly prepared items. It seems not unreasonable that the attitude of organized medicine toward the legislative problem should be a preparedness to defend its rights and to advise on measures affecting the welfare and health of the public.

SYMPOSIUM ON GOITER

Thyroid Disease

Dr. Henry S. Plummer, Rochester, Minn.: The exophthalmic goiter is seldom missed by relatively good men. Adenomas and hyperthyroid are constantly missed by the best men because many circulatory troubles attributed to myocardial degeneration do not suggest hyperthyroidism. When we are dealing with goiter we are dealing with a person who is burning food too fast or too slow. That people who have had exophthalmic goiter operations are not well is due to the fact that they still have exophthalmic goiter.

Epinephrin Hypersensitiveness Test in the Diagnosis of Hyperthyroidism

Dr. Emil Goetsch, Baltimore: In clinical states of hyperthyroidism there is an increased constitutional sensitiveness to epinephrin (adrenalin), and in states of hypothyroidism there is an increased tolerance for epinephrin hypodermically administered. I myself have carried out or supervised the carrying out of the test in 300 cases of thyroid disease and in approximately 100 conditions simulating in many respects hyperthyroidism. In a so-called positive reaction there is usually an early rise in systolic blood pressure and a fall in diastolic blood pressures. In a very mild reaction the fall in diastolic pressure may occur alone. There is a rise in pulse rate of at least 10 and sometimes as much as 50 or more millimeters of mercury. In the course of thirty or thirty-five minutes there is a moderate fall of the pulse and blood pressure, then a characteristic secondary rise, and then a second fall to the normal in about one and a half hours. Together with these changes one sees an exaggeration of the clinical picture, especially the nervous manifestations.

Principles Underlying the Treatment of Toxic Goiter

Dr. Charles H. Frazier, Philadelphia: Patients with toxic goiter from the standpoint of treatment fall into one of five groups: 1. The mildly toxic goiter of the adolescent group. The enlargement of the gland is compensatory in nature, the toxic symptoms are not constant, and when present are of mild degree. Proper supervision of the girl's

life, as to hours of work and sleep, and restriction of studies for the schoolgirl, with a trial of iodin internally, will tide the patient over a period of thyroid disturbance from which, on entering womanhood, she may be entirely free. 2. The mildly toxic of the adenoma group. If under proper supervision there is no tendency to progression, the determination for or against operation will depend in large measure on how much the patient is handicapped either in work or in recreation. Operation is a choice and not a necessity. As a subdivision of this group may be entered the patient of definite neurasthenic type with a small adenoma. These are puzzling cases, and I know of no criterion, when the basal metabolism is not above normal, by which the surgeon is to determine whether or not the neurasthenia is dependent on the thyroid disorder. 3. The grave toxicosis of the adenomas, not the true exophthalmic type, always, but its equivalent so far as the gravity of the prognosis is concerned. If the condition is not already inoperable, as it sometimes is, no time should be lost in inaugurating a course of treatment leading up to an eventual resection. 4. The initial hyperplastic goiter, without the precedence of an adenoma, appearing most often in the early years of the third decade. The prognosis without operation is grave. The operative risks in the early stages are trivial, the period of convalescence is short and the end-results satisfactory. The possibility of a complete recovery in the late stage is appreciably reduced. 5. The degenerative or atrophic or the terminal stage of a more or less prolonged hyperplasia. There comes a time in certain cases when, should the patient survive the hyperplastic stage, definite signs of hypoplasia are apparent. Manifestly here, then, is no justification for the removal of gland tissue.

DISCUSSION

DR. HAROLD L. FOSS, Danville: Goetsch's test is going to find its greatest value in the hands of the general practitioner. Every patient with goiter who comes to the surgeon has been treated with every sort of drug and chemical one can conceive of until, in the vast majority of these cases, particularly in the exophthalmic forms, the degenerative changes in the heart and nervous system and kidneys are so advanced that these patients are a profound risk. It is due to the fact that the general practitioner has not had at his command a means by which an accurate diagnosis can be made. He will now be able to submit his patients to this test and make positive diagnosis, and a larger number will be referred in time so that the surgeon can bring about a cure. If there is anything pernicious in medicine it is the haphazard treatment of these patients. Unquestionably, surgery is the treatment of goiter in all cases, except the diffuse goiters of young girls and the adenomatous goiters with advanced degenerative changes in the heart.

DR. GEORGE P. MÜLLER, Philadelphia: Toxic adenoma can be cured by operation. In cases of diffuse hypertrophy, one must be cautious as to the prognosis because of the large percentage of recurrence and a certain percentage of failures and mortality. Mortality practically never occurs in an adenomatous case, and does occur in the other type.

DR. ALBERT F. HARDT, Williamsport: The indiscriminate use of various glandular preparations, and especially the use of electricity, should be condemned. Patients that had been treated by electricity claim their thyroid had been reduced in size. We all know that the size of the thyroid has nothing to do with its toxicity. The small thyroids, scarcely palpable, may be intensely toxic.

DR. ADELAIDE ELLSWORTH, Warren: I wish to attest to the value of the epinephrin (adrenalin) test. I have used it as a routine for months in differentiating the nervous and circulatory disturbances that arise in cases of neurasthenia, hysteria and the psychoneuroses from subacute hyperthyroidism. Many women are called neurasthenics when they are in reality suffering from hyperthyroidism.

DR. EMIL GOETSCH, Baltimore: I have never yet seen a patient who had a bad postoperative course if it had had a mild reaction before operation. In those cases in which there was a sharp reaction before operation there was generally a stormy postoperative course. So forewarned, you get operation through in a hurry, whereas otherwise you are likely to delay a little, and it may be those fifteen minutes that will give you a bad result. If you make the test in this early stage and find it positive, you have a great deal of evidence on your side that you can help the patient by operation. I know that my best results have come from this class of cases. I have not seen a test yet that is infallible; but if it is 95 per cent. good, it is valuable. In regard to cases in which syphilis is present, I do not want to discourage the point of view that there might be a connection between intoxication of syphilis and hyperthyroidism. I think there must be an association between definite syphilis and an expression of hyperthyroidism.

SYMPOSIUM ON DISEASES OF THE GASTRO-INTESTINAL TRACT

Value of the High Rectal Enema

DR. HENRY D. JUMP, Philadelphia: We made persistent efforts with men and women patients in various postures to run the tube into the sigmoid flexure. While this may be done under certain conditions, it is difficult, uncertain and in most instances impossible.

DISCUSSION

DR. ROBERT A. KEILTY, Danville: We have tried on several occasions at a necropsy to pass a tube high, and have found that only under exceptional circumstances will the tube pass the sigmoid flexure at the brim of the pelvis.

DR. THOMAS MCCRAE, Philadelphia: The idea is so firmly fixed that there is a difference between giving fluid low down and supposedly high up that it is going to take many years and a great many papers before that idea will get into the minds of more than a comparative few. It is important for nurses in training schools to know this. Much time is lost in teaching nurses how to give this and that sort of enema.

DR. J. J. GILBRIDE, Philadelphia: I do not know that we miss a great deal by being unable to pass a tube high up. Of course, this paper will serve a purpose in emphasizing to others the needlessness of trying to do something that cannot be done.

DR. DAVID J. HETRICK, Harrisburg: Some time ago I had a nurse discharged from a little patient because she persisted in using a catheter high up. She gave the child intense pain. She said it was her teaching.

DR. HENRY K. PANCOAST, Philadelphia: There is one danger in the attempt to give a high enema. When the tube is kinked, considerably more force has to be used to get the fluid into the rectum. It must be given slowly; if given too fast, there is sure to be spasm of the descending colon which will prevent the fluid going very far. The ileocecal valve serves its purpose well when taking care of fecal contents; but when it tries to stop enemas, it has no power to do this and it opens almost invariably. Our time to stop barium enemas is when we see the ileocecal valve give way. One case is on record in which a barium enema has been vomited. I believe that in one instance the tube has been introduced as far as the splenic flexure.

DR. ALFRED T. LIVINGSTON, Jamestown, N. Y.: The only thing that has not been mentioned is the most important of all, and that is the technic of the enema. There is a tendency to spasm if the fluid is introduced rapidly, which causes great pain and obstruction of the flow of fluid. I found that approaching a pint this spasm would occur. When approaching a pint I stop the flow, wait a few seconds, and then slowly begin again. If it passed a pint and a half, I was sure that the sigmoid had relaxed, and then I was sure there was a free passage. As a rule, I give from 4 to 6 pints or even as high as 9 pints.

DR. ALFRED C. WOOD, Philadelphia: It may be worth while to call attention to the danger of making an effort to pass the so-called high rectal tube; but in spite of that, as Dr. McCrae has said, certain individuals still insist on trying. I have known of instances in which not only was the rectum perforated, but the nurse went on with the administration of the enema, all of which was received into the peritoneal

cavity. Therefore, it seems to me that Dr. McCrae's hint should be taken to heart, and all of us who have anything to do with the teaching of nurses should impress on them that not only is there no occasion to pass the tube more than 2 or at most 3 inches, but also if they have a rather rigid tube there is very positive danger in it. In regard to the quantity of fluid that may be administered, I have been at the operating table in a case of severe hemorrhage in which the efforts of the physicians present to sustain the patient until the operation might be concluded were so persistent and aggressive that the physiologic sodium chlorid solution put into the patient's bowel finally ran out of the mouth while I was operating. In another case the enema came out of the mouth from the constant desire to overcome, as supposed, fecal impaction, which did not exist.

Present Status of Therapeutic Pneumothorax in Pulmonary Tuberculosis

DR. ALEXANDER ARMSTRONG, White Haven: I am convinced that therapeutic pneumothorax is the only new plan of treatment for pulmonary tuberculosis discovered in recent years which has positive value. Selection of the suitable case for the operation requires careful physical diagnosis and usually several weeks of close observation of the patient. Progressive softening is still the indication which most often calls for compression of the lung. Remembering that pleurisy is usually a forerunner of tuberculosis, this treatment should be employed early. I would urge that in every town of more than 10,000 inhabitants one physician familiarize himself with the plan of treatment. If it is used at the right time there will be fewer cases of the advanced type of pulmonary tuberculosis.

DISCUSSION

DR. ISADORE KAUFMAN, Philadelphia: We should be very cautious in recommending this procedure to the general practitioner. The suitable case must be selected with much care, and the procedure carried out under strictly aseptic technic. The man who uses the method must be a surgeon working under the direction of a man familiar with tuberculosis, or the injection can be carried out by a man thoroughly conversant with the disease, performing the operation himself.

DR. ALEXANDER ARMSTRONG, White Haven: Regarding the time of giving the treatment, to wait under the expectant treatment longer than six weeks is almost criminal negligence. Admitting that the treatment is on trial, I believe the patient should be given the chance it offers.

Medical Treatment of Diseases of the Gastro-Intestinal Tract

DR. JOHN A. LICHTY, Pittsburgh: The points of difference between medical and surgical treatment of diseases of the gastro-intestinal tract center usually about diseases of the appendix, gallbladder, stomach, especially ulcerations, and pancreas. An acute appendicitis is plainly a surgical condition; a chronic appendicitis, which is always difficult to diagnose, is not receiving the same enthusiasm from the surgical side as it did formerly, and is receiving more serious attention from the medical man. With reference to peptic ulcer, there are still those who feel that it is a surgical condition, and only that. Evidently, the difference of opinion here is largely due to the fact that the surgeon speaks of a different condition, a chronic, indurated, incurable, peptic ulcer, whereas the physician speaks of an acute ulcer which may heal spontaneously, if left alone, or in which the healing may be brought about more promptly by attention to diet and by the use of well known remedies and procedures. In diseases of the gallbladder, matters are reversed. The acute condition receives medical attention; the chronic condition is in nearly all cases the surgical condition. In disease of the pancreas, conditions are very much as with the appendix. The acute condition demands prompt surgical procedure; the chronic condition demands most deliberate study and possibly largely medical and dietetic treatment.

Attitude of the General Practitioner

DR. WILLIAM EGBERT ROBERTSON, Philadelphia: The conviction is soon borne in on the general practicing physician that it is to him that the ailing individual first comes for advice, and that it is his privilege and duty so to study the patient's condition that relief may follow on an exact diagnosis, or that the thorough preliminary study may result in the selection of other counsel most suited to the particular need of the case. It is necessary, not alone to permit the patient to narrate his complaints, but to take a history and make a complete physical examination in every instance. I fear that the tendency on the part of the busy family physician to accept a patient's diagnosis is somewhat frequent. It leads to errors of subsequent judgment, and in consequence, to errors in handling the patient, and it may lead to operation unnecessarily, and because of this fact may jeopardize or even sacrifice the life of an individual, or may postpone till too late an operation that might have promised cure. These are the reasons which make imperative the more careful study of any patient who presents apparent gastro-intestinal symptoms. How often is the physician the advance agent of some drug concern? Thoughtlessly handing out a sample, he may invite the development of a habit of self medication, or may aid in confirming a tendency already in existence. If notes are not kept, and no record of the progress of the patient's condition is made, he is not able to recall the details either of the patient's condition or the treatment, and hence he is forced to rely on the patient's statement for these, as he was for the diagnosis, and the patient is not slow to grasp the situation.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Surgery, Philadelphia

October, 1919, 70, No. 4

Most Important Factor in Treatment of War Wounds and Most Important Factor in Civilian Surgery—The Good Surgeon. G. W. Crile, Cleveland.—p. 385.

Problem of "Slightly Wounded" in Military and Civilian Practice. W. E. Lower, Cleveland.—p. 388.

What Would Be the Benefit to the Civilian Surgeon in the Experience Gained by Our Military Surgeons in the Recent World War? E. A. Vander Veer, Albany.—p. 392.

*Roentgenography of Brain After Injection of Air into Spinal Canal. W. E. Dandy, Baltimore.—p. 397.

*Fracture of Skull; Its Neurologic Manifestations. A. O. Wilensky, New York.—p. 404.

*Gunshot Fractures of Humerus Treated by Suspension and Traction. M. K. Smith, New York.—p. 430.

*Fractures of Lower Third of Femur. J. Van de Velde, La Panne, Belgium.—p. 461.

Contribution of War to Surgery of Knee Joint. B. J. Lee, New York. —p. 464.

Pocketing Operations and Other Skin and Fat Transfers. J. E. Cannaday, Charleston, W. Va., and L. S. Brookhart, Cleveland.—p. 469.

*Barrel Stave Splint in Fracture of Clavicle. H. A. Royster, Raleigh, N. C.—p. 474.

Phases of War Surgery: Bone Transplants from Tibia to Lower Jaw for Loss of Substance. C. A. Powers, Denver.—p. 476.

*Foreign Bodies Arrested in Duodenum. W. Fisher, Toledo.—p. 479.

*"Enuresis" of Adults: Hypertonic Bladder. L. Brahdy, New York. —p. 482.

Organization and Operation of an Evacuation Hospital. D. Lewis, Chicago, and T. J. Leary, Washington, D. C.—p. 489.

Three Table Military Operating Room a Plan Applicable to Civil Hospitals. J. T. Gwathmey, New York.—p. 497.

Roentgenography of Brain After Injection of Air Into Spinal Canal.—As has been shown by Dandy, one or more of the cerebral ventricles can be outlined sharply in a roentgenogram if the ventricular fluid be withdrawn and replaced by an equal quantity of air. In the course of this work he also noted that in many cases some of the air had passed out of the ventricular system and could be seen in filaments on the surface of the brain, that is, in the sulci. These observations, Dandy believes, point to new possibilities in intracranial diagnostic study. Many lesions of the brain affect part of the subarachnoid space directly or indirectly. These, and no doubt many other conditions, should be demonstrable by the

absence or by the presence of air over the cerebral hemispheres. This air is injected into the spinal canal. By this method the influence of the ventricular system is eliminated entirely; the air passes directly into the cisterna magna and thence into the ultimate ramifications of the subarachnoid space. Dandy cautions that this procedure is not devoid of danger. Medullary distress, even fatal results, might follow from increased intracranial pressure if the amount of air injected were even slightly in excess of the fluid withdrawn. He has injected air intraspinously into four children and four adults without any bad effect. In this series of eight cases, the location of the lesion was determined accurately in three. In the remaining five, the subarachnoid space was normal. In the three patients in whom the lesion was located by means of intraspinous air, other methods had failed entirely. The findings in these cases are stated briefly.

Fracture of Skull.—Wilensky analyzes in detail seventy-two cases of fracture of the skull in which the mortality was 31 per cent. He points out that conservative and expectant methods of treatment, whenever they can be employed safely, yield the best results. He is unalterably opposed to operating indiscriminately in every case of fracture of the skull. Operation is imperative in every case showing the signs of an advancing intracranial pressure. Operation should be done in the early stages before there is evidence of medullary involvement. Irritative or paralytic focal symptoms pointing to pressure on or disorganization of definite cortical areas are the next most important indications of operative interference. Isolated or irregular disturbances of neurologic function can be discarded and in these cases conservative forms of treatment will yield superior results; seemingly these abnormalities have no important therapeutic bearing in the total clinical picture.

Treatment of Gunshot Fracture of Humerus.—Smith favors suspension and traction in the treatment of gunshot fractures of the humerus because it gives a favorable posture for treatment of the wound, favors the maintenance of reduction for any type of fracture, and promotes early recovery function.

Fracture of Lower Third of Femur.—Van de Velde divides open fractures by missiles into three different types—fractures with: (1) no comminution; (2) slight comminution, and (3) much comminution. For each of those types three different methods of treatment were used at La Panne. Those methods are: (1) wiring; (2) traction on the femoral condyles by ice tongs, Steinman pins, or Willems screws, and (3) Depage's vertical suspension of lower fragment combined with horizontal traction on the leg.

Barrel Stave Splint in Fracture of Clavicle.—Royster disclaims originality for this treatment which, it is said, was devised by Dr. Spohn of Corpus Christi, Texas. To apply this barrel stave splint to a fractured clavicle, the center of the stave is found, and this should be placed over the center of the patient's manubrium, at the suprasternal notch. The stave is then sawed off at each end to fit just inside the head of each humerus while the shoulders are drawn backward. One inch from each end a nail is driven into, but not through, the spint. The splint is then padded with cotton, retained by a bandage, and placed in the position as first measured, the concave surface being next to the chest. While the splint is held in place and the shoulders kept firmly back, bandages are tied to the nails, carried under each axilla, and crossed on the back in the figure-of-eight fashion; many turns are made and the stave is drawn as tightly as necessary. If there is a tendency of the splint to turn or to slip, adhesive plaster may be applied to reinforce the bandage, but it is rarely needed. If the patient is a heavy, muscular subject, the arm is put into a sling. The apealing quality of this dressing is its comfort. The patient may use his hands and forearms at will without disturbing the fragments, and he is relieved of the distress which the older dressings give.

Foreign Bodies Arrested in Duodenum.—Fisher reports three cases. In the first case a hair pin was fixed in the third portion of the duodenum, one end of the sharp point having become bent at an angle and penetrating the mucous coat of the duodenum. In the second case, a basting thread remover was fixed in the third portion of the duodenum, the sharp point having penetrated its posterior wall. In the third case, a beauty pin was fixed along the inner edge of the vertical portion of the duodenum, the sharp point having penetrated the bowel. In each case the foreign body was removed successfully by means of a duodenotomy.

Enuresis of Adults.—Six cases are cited by Brahdy. He claims that there is a clinical syndrome characterized by occurrence in families, congenital onset, frequent voiding of small amounts of urine with marked urgency, easy fatigue and drowsiness, tenderness to percussion of lower lumbar and upper sacral vertebrae and trabeculated bladder. These cases illustrate a type of bladder disturbance probably due to a congenital hypertonicity of the bladder. The difference between the amount of urine usually voided and the amount of fluid which can be injected, the trabeculated bladder and the powerful urinary stream indicate increased tonus. The lumbar pain, the tenderness of the vertebral column, the frequency and urgency in the absence of any unusual stimulus, the occasional spasm of the abdominal and leg muscles on filling the bladder, indicate hypersensitive as well as hyperactive cord centers. The cases are characterized by an urgent desire to urinate when the bladder contains from 100 c.c. to 150 c.c. of urine. If this desire is not acted on involuntary urination takes place. The physical bladder capacity is only occasionally markedly diminished. The "physiologic capacity," that is, the amount the bladder will hold before the bladder contraction reflex takes place, is always less than half the normal. Remissions occur but are rare, of short duration and not complete. The treatment thus far given in these cases has been very unsatisfactory.

Archives of Ophthalmology, New Rochelle, N. Y.

September, 1919, **48**, No. 5

Ocular Phenomena in Psychoneuroses of Warfare. G. E. de Schweinitz, Philadelphia.—p. 419.
Ocular Functions of Aviators. W. H. Wilmer, Washington, D. C. —p. 439.
Case of Keratitis Profunda (or Disciformis?) with Microscopic Examination. F. H. Verhoeff, Boston.—p. 449.
Judgment of Distance with Semaphores and a Screen at 100 Meters. H. J. Howard, Mineola.—p. 461.
Colobomba and So-Called Congenital Dislocation of Lens. C. F. Clark, Columbus.—p. 475.
Case of Bilateral Glioma of Retina Apparently Arrested in Non-Enucleated Eye by Radium Treatment. M. J. Schoenberg, New York.—p. 485.
Phantom Intraocular Tumor. Multilocular Cyst of Iris and Ciliary Body. R. I. Lloyd, Brooklyn.—p. 489.
Study of Dark Adaptation. P. W. Cobb, Mineola.—p. 492.
Maddox Rod Screen Test. P. Dolman, Mineola.—p. 503.

Arkansas Medical Society Journal, Little Rock

October, 1919, **16**, No. 5

Prevention of Venereal Disease as a Public Economical Problem. J. T. Clegg, Siloam Springs.—p. 97.
Clinical Lessons from Influenza and Pneumonia. G. S. Brown, Conway.—p. 98.
Personal Experience in Epidemic Influenza. H. N. Stree, Lonoke. —p. 100.
Spanish Influenza. S. J. McGraw, El Dorado.—p. 102.
Pathology of Influenzal Pneumonia. D. C. Lee, Little Rock.—p. 104.

Boston Medical and Surgical Journal

Oct. 23, 1919, **181**, No. 17

Army Tuberculosis Problem as Seen in Massachusetts. J. B. Hawes, Boston.
Physiologic Basis of Common Gastrointestinal Syndromes Found in Pulmonary Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 501.
Loss of Sight from Retrobulbar Neuritis Due to Posterior Accessory Sinus Disease; Report of Seventeen Cases. L. E. White, Boston. —p. 505.
Necrosis of Index Finger from Lysol. An Argument for the Thorough Mixing of Such Solutions. H. K. Sowles, Boston.—p. 510.

Canadian Medical Association Journal, Toronto

October, 1919, **9**, No. 10

*Cardiac Disease with Extensive Venous and Cardiac Thrombosis. F. G. Finley, Montreal.—p. 877.
Flying Sickness; Diagnosis. H. E. Munroe, C. A. M. C.—p. 883.
Care of Military Mental Cases. E. H. Young, C. A. M. C.—p. 896.

Shakespeare as a Guide in the Art and Practice of Medicine. St. Clair Thomson, London, Eng.—p. 901.
*Treatment of Burns by Tincture of Iodin. O. F. Mercier, Montreal. —p. 915.
Cranioplasty. C. H. Gilmour, Toronto.—p. 922.
Backward Displacements of Uterus. A. C. Hendrick, Toronto.—p. 927.

Cardiac Disease with Extensive Venous and Cardiac Thrombosis.—Finley reports a case of cardiac hypertrophy and dilatation accompanied by extensive venous and cardiac thrombi. The patient, a woman, 39 years of age, complained of pain in the chest, cough and paralysis of the right arm and leg. Then the left side became paralyzed. Fulness in the supraclavicular region was noticeable, with tenderness along the course of the axillary veins and of the veins at the bend of the elbow, with some enlargement of the veins of the forearm and front of the chest. The hand was slightly swollen and there was marked edema about the elbow. A rounded and tender cord was present in the supraclavicular region and along the line of the brachial vessels. This condition was regarded as a thrombosis of the brachial, subclavian and probably the innominate veins. Then she complained of considerable pain in the right side of the neck and forearm, followed next day by fulness in the supraclavicular region with tenderness extending down to the axilla. A cord was felt along the posterior border of the sternomastoid muscle and along the course of the brachial vessels; the veins of the forearm and front of the chest were slightly swollen and prominent. Swelling of the right arm was present for a few days. During her illness there was considerable dyspnea, often orthopnea, with a moderate grade of cyanosis. The heart almost constantly presented the presystolic gallop rhythm and there was heard only an occasional systolic murmur at the apex. A diastolic murmur heard on admission passed off soon after admission, being only heard on two occasions. The case was regarded during life as probably being one of infective endocarditis. In favor of this view was a heart with failing compensation, fever without other apparent cause, and the presence of hemiplegia. The necropsy findings revealed a hypertrophied and dilated heart, corresponding to the signs found during life. The only trace of endocarditis consisted of an antemortem grayish yellow clot in three chambers of the heart, the ventricles and the right auricle. The largest of these was situated near the apex of the left ventricle where the wall of the heart was thinned and fibrous and its center was broken down and fluid and contained a growth of *Staphylococcus aureus*. Several clots in the right ventricle also contained softened centers.

Treatment of Burns by Tincture of Iodin.—The use of a 10 per cent. tincture of iodin is endorsed by Mercier as a good treatment for burns of all kinds and degrees. The treatment is painful during its application and for a few minutes (four or five) following it, but as soon as the pain so caused is over, the pain that always accompanies the burn is completely suppressed and the patient feels a complete relief. No untoward effects have been noted. The iodin is applied with a piece of absorbent cotton, soaked heavily in the tincture of iodin. Only one application is made. Mercier's experience with this treatment has been very gratifying.

Indiana State Medical Association Journal, Fort Wayne

Oct. 15, 1919, **12**, No. 10

Public Health Work by Indiana State Medical Association. W. H. Stemm, North Vernon.—p. 257.
Diseases of Prostate and Neighboring Structures. Physiology, Symptomatology and Pathogenesis. V. D. Lespinasse, Chicago.—p. 260.
*Case of Tuberculosis with Very High Temperature. G. C. Johnson, Evansville Ind—p. 262.

High Temperature in Tuberculosis.—Following an attack of measles and whooping cough, Johnson's patient, then 10 years of age, developed pulmonary tuberculosis. She was treated in a camp and was finally discharged with the disease arrested. Three years later her temperature ran an irregular course for which no explanation could be given. She had no cough or physical signs of activity in her chest. The temperature began to reach 109 and 110 F., going up quickly though never remaining up for more than one or three hours. She did not complain much during these periods, except of headache. The sputum and urine were negative, also the blood, except for moderate leukocytosis. A roentgenogram of the chest showed considerable involvement of the right apex with a small cavity. A number of miliary tubercles were found on the left choroid (examination two years later failed to find any evidence of these). A diagnosis of acute miliary tuberculosis was made on the eye findings. At this time she was suffering with toothache, and an examination disclosed an abscess at the root of one of her teeth. The trouble was corrected, following which her temperature promptly dropped to normal.

Journal of Biologic Chemistry, Baltimore

October, 1919, **39**, No. 3

*Action of Radium Emanation on Vitamins of Yeast. K. Sugiura and S. R. Benedict, New York.—p. 421.
Biochemical Changes in Muscle Tissue of King Salmon During the Fast of Spawning Migration. C. W. Greene, Columbia, Mo.—p. 435.
*Changes in Nitrogenous Extractives in Muscular Tissue of King Salmon During the Fast of Spawning Migration. C. H. Greene, New Haven, Conn.—p. 457.
*Direct Determination of Non-Amino Nitrogen in Products of Protein Hydrolysis. A. Hiller and D. D. Van Slyke, New York.—p. 479.
*Colorimetric Determination of Hemoglobin. B. Cohen and A. H. Smith, New Haven.—p. 489.
Studies on Proteinogenous Amines. II. A Microchemical Colorimetric Method for Estimating Imidazole Derivatives. K. K. Koessler and M. T. Hanke, Chicago.—p. 497.
Studies on Proteinogenous Amines. III. A Quantitative Method for Separating Histamine from Histidine. K. K. Koessler and M. T. Hanke, Chicago.—p. 521.
Studies on Proteinogenous Amines. IV. The Production of Histamine from Histidine by Bacillus Coli Communis. K. K. Koessler and M. T. Hanke, Chicago.—p. 539.
Studies on Proteinogenouss Amines. V. Preparation of P-Hydroxyphenylethylamin Hydrochlorid (Tyramin Hydrochlorid). K. K. Koessler and M. T. Hanke, Chicago.—p. 585.

Action of Radium on Yeast.—Growth promoting factors in yeast may be inactivated partially by means of exposure to radium emanation. It is suggested by Sugiura and Benedict that it is possible that the therapeutic effect of radium on neoplasms may be due in part, at least, to this destruction of growth promoting substance.

Nitrogenous Extractives and Protein Metabolism.—The presence in the body of a mechanism regulating the concentration of amino nitrogen in the fluid of the tissues is indicated by Green's work. The importance of this observation and its significance relative to the theories of protein metabolism are discussed.

Nonamino Nitrogen in Proteins.—Hiller and Van Slyke found that in the mono-acid fraction of the products of protein hydrolysis, as analyzed by the method of Van Slyke, the nonamino nitrogen, comprising the nitrogen of proline, exoproline, and one-half that of the tryptophane, can be determined directly by a single Kjeldahl determination. The amino nitrogen is removed by warming with sodium nitrite and hydrochloric acid, the excess of nitrous acid is reduced with a zinc copper couple by Scales' method, and the nonamino nitrogen in the residue determined by Kjeldahl. The results by this method agreed closely, in analyses of casein and gelatin, with the results obtained indirectly by Van Slyke's original procedure, in which the nonamino nitrogen is calculated as the difference between total nitrogen and amino nitrogen.

Colorimetric Determination of Hemoglobin.—A method for the colorimetric determination of hemoglobin in blood is described by Cohen and Smith which combines the methods of Sahli and of Palmer. The hemoglobin of whole blood is changed to acid hematin with hydrochloric acid and compared with a standard in a colorimeter. When the Autenrieth-Hellige colorimeter is used, this method is admirably adapted for field use and yields accurate results.

Journal of Cutaneous Diseases, Chicago

October, 1919, **37**, No. 10

*Lichen Planus. E. G. Little, London, England.—p. 639.
*Lichen Planus. C. J. White, Boston.—p. 671.

*Hitherto Undescribed Generalized Pigmentation of Skin Appearing in Infancy in Brother and Sister. G. W. Wende and H. H. Bauckus, Buffalo.—p. 685.
Recent Progress with Syphilis. H. G. Irvine, Minneapolis.—p. 702.

Treatment of Lichen Planus.—In the treatment of lichen planus, Little places most reliance on a combination of arsenic and mercury. It has been very successful in his hands in all stages of the disease, the acute and intensive cases as well as the chronic cases, especially in controlling itching, which usually yields within a week of treatment. In acute cases it is well to restrict the diet to bread and butter, rice and water for several days at the outset of treatment.

Treatment of Lichen Planus.—In White's opinion no internal remedy is worthy of the name in this disease. Menthol in ointment form will temporarily relieve the pruritus. Detergents will tend to reduce the hyperkeratosis. Stimulants will possibly decrease the infiltration. Roentgen rays, in White's experience, have proved a broken reed to lean on.

Pigmentation of Skin.—In the two cases cited by Wende and Bauckus the pigmentation began when the children were less than 1 year of age, making its appearance first on the scalp and face and then on the trunk until the process involved the entire body. Finally, the skin, especially of the face and trunk, because almost black. No causative factor could be found, either in the parents or in the children. The process suggests abnormal physiologic function rather than pathologic disturbance. The histologic findings were limited to abnormal cells corresponding to chromatophores in the corium and epidermis. The pigment apparently was derived from nuclear material.

Journal of Mental and Nervous Diseases, Lancaster, Pa.

September, 1919, **50**, No. 3

Simulation (Malingering) not an Adequate Diagnosis. W. A. White, Washington, D. C.—p. 209.
*Bilateral Frontal Hemorrhage. F. J. Farnell, Providence, R. I.—p. 218.
*Menstrual Disturbances in the Feebleminded. H. Swanberg, Lapeer, Mich., and H. A. Haynes, Detroit.—p. 224.

October, 1919, **50**, No. 4

Constructive Policy for the Advance of Neurology. W. Timme, New York.—p. 313.
*Acute Prison Neurosis of Anxiety Type. N. S. Yawger, Philadelphia.—p. 319.
*Dementia Praecox in Twins. M. H. Frantz, New York.—p. 325.
Nervous and Mental Diseases in the War. J. F. W. Meagher, Brooklyn.—p. 331.

Bilateral Frontal Hemorrhage.—Farnell reports the case of a woman, 49 years of age, whose make-up apparently was normal, with a clear history of no previous attacks or upsets. She develops a mental state not unlike the manic form of manic depressive insanity which settled after several months in a hypomaniacal condition. Physically, there was hypertension, blood pressure, 210; albumin in the urine. Approximately twelve months after the onset of this so-called functional psychosis, she had a cerebral hemorrhage with the clinical signs suggesting the intraventricular type. This was followed by a complete change in the mental picture; irregular functional psychosis with thought disorder, which settled into an organic psychosis with obstructive disorders or an intellectual loss. Her physical condition improved, but not her mental state. Within five or six weeks cerebral compression developed and ultimately contributed toward her death. At the necropsy the brain showed bilateral midfrontal hemorrhage with organization, secondary necrosis and softening of the brain tissue itself. The vascular sclerosis was localized to the cerebral vessel system.

Menstrual Disturbances in Feebleminded.—Seven hundred women, inmates of an institution for the feebleminded, were examined by Swanberg and Haynes for the purpose of ascertaining those suffering from pathologic menstrual disturbances. Of this number, 425 were menstruating normally; 177 had a physiologic amenorrhea and 108 were suffering from pathologic menstrual disturbances. The most common disorders were irregularity, amenorrhea and dysmenorrhea. The percentage of menstrual disorders was in proportion to the degree of mental deficiency; the lower the mental state, the greater the number of pathologic cases. Amenorrhea and possibly oligomenorrhea were far more frequent among the lower types—imbeciles and idiots, while the vast majority of cases of dysmenorrhea were among the higher class—the morons.

Acute Prison Neurosis.—Yawger describes a prison anxiety neurosis which develops in individuals of constitutional inferiority. The subjective evidence presents in the form of restlessness, decreased power of mental concentration, irritability, hypochondriacal and introspective manifestations, dreams of a disturbing nature often broken by a distressing insomnia, digestive and genito-urinary manifestations, cardiac irregularity or respiratory disturbances. Usually there is appreciable loss of weight and sometimes an increased use of tobacco. Objectively, a tremor may be encountered and generally an increased activity of the skin and tendon reflexes.

Dementia Praecox in Twins.—Frantz' patients were twin brothers, 20 years of age. Both had dementia praecox of the catatonic type. One was an inmate of an institution; the other was not in need of any restraint. The family history was fairly good although the father had been very nervous.

Journal of Parasitology, Urbana, Ill.

September, 1919, **6**, No. 1

*Stomach Spirochete Occurring in Mammals. K. Kasai and R. Kobayashi, Tokio.—p. 1.
Specific Identity of Heronimus Chelydrae MacCallum and Aorchis Extensus Barker and Parsons. H. W. Stunkard.—p. 11.
Migrating Course of Ascarid Larvae in Body of Host. S. Yoshida, Osaka.—p. 19.
Life History of Davainea Tetragona (Molin), a Fowl Tapeworm. J. E. Ackert, Kansas.—p. 28.
Life History of Chicken Cestode, Hymenolepis Carioca (Malgalhaes). J. E. Guberlet, Oklahoma.—p. 35.
*Study of Human Lung Distome, Paragonimus Westermani.—K. Nakagawa, Taichu, Formosa.—p. 39.
Dissotrema Synonymous with Gyliauchen. S. Goto, Tokio.—p. 44.

Stomach Spirochete.—Aside from the fact that this organism was found by Kobayashi and Kasai in the stomachs of a large number of dogs, cats, rats, monkeys and other animals, a point of interest is the belief held by the authors, that the cases of hemorrhagic gastro-enteritis described by Balfour and Lucet are in all probability due to the secondary pathogenicity of this spirochete.

Human Lung Distome.—The human lung distome was found by Nakagawa in the crab. He claims that its identity with the larvae of *Paragonimus westermani* is a matter beyond dispute.

Maine Medical Association Journal, Portland

October, 1919, **10**, No. 3

Medical World after World Cataclysm. C. E. Banks.—p. 55.

Modern Hospital, Chicago

October, 1919, **13**, No. 4

Future Tasks and Problems of American Hospital Association. A. R. Warner, Cleveland.—p. 255.
How to Insure a Large Milk Supply in the Hospital. J. B. Howland, Boston.—p. 258.
Hospitals of the Old World and the New. M. J. Robinson, Chicago.—p. 260.
Question of Fire Hazards in Hospitals. W. D. Crow, New York.—p. 265.
Blodgett Memorial Hospital. C. M. Hendrie, Grand Rapids, Mich.—p. 268.
New York Nursery and Child's Hospital. M. E. McCormack, New York.—p. 275.
Neustadter Foundation; Convalescent and Recreation Home for Women and Children. York and Sawyer, S. S. Goldwater, New York.—p. 277.
Patients' Mess, Base Hospital, Camp Custer, Mich. C. N. Frey, Camp Custer.—p. 280.
Can Hospital Equipment Be Standardized? E. F. Stevens, Boston.—p. 287.

Nebraska State Medical Journal, Norfolk

October, 1919, **4**, No. 10

Trained Nurse; Opportunities for Service. I. S. Cutter, Omaha.—p. 287.
Ethical Relation of Nurse and Doctor. J. M. Aikin, Omaha.—p. 289.
Treatment of Appendix Stump. A. J. Brown, Omaha.—p. 292.
Arteriosclerosis. L. Stark, Hartington.—p. 295.

Enterocolitis; Differential Diagnosis and Treatment. W. R. Talboy, Newcastle.—p. 299.
Field and Results of Roentgen Therapy. A. F. Tyler, Omaha.—p. 303.

Philippine Journal of Science, Manila

March, 1919, **14**, No. 3

*Pelvimetry and Cephalometry among Filipino Women and Newborn Babies. H. Acosta-Sison and Fernando Calderon, Manila.—p. 253.
Lumbang Oil Industry in Philippine Islands. R. H. Aguilar, Manila. —p. 275.
New Philippine Gall Midges. E. P. Felt, New York.—p. 287.
Palms of Philippine Islands. O. Beccari, Florence, Italy.—p. 295.

Pelvimetry on Filipino Women.—The data given by Acosta-Sison and Calderon are the result of an examination of 1,237 women. It is evident that the Filipino pelvis is of a type different from either the white American or the negro pelvis, and its average normal measurements are similar to those of the generally contracted pelvis of the white American. The index of the posterior pelvic plane in cases of contracted intertuberal diameter is important in the determination of the probable outcome of labor. Contracted pelvis, except in cases of osteomalacia, is rarely an indication for cesarean section among Filipino women. There is practically no difference in the measurements of the pelvic diameters of multiparas and primiparas. The new-born babies of multiparas are longer and heavier than those of the primiparas. The babies of mothers who stayed in the hospital for one or more weeks before delivery are heavier than those whose mothers entered the hospital at the time of labor. The male babies are in greater number and are longer and heavier than the female babies. Labor is longer in primiparas than in multiparas.

Virginia Medical Monthly, Richmond

October, 1919, **46**, No. 7

Spinal Puncture in Surgery of Brain. C. C. Coleman, Richmond. —p. 159.
Obstetric Abnormalities; Report of Cases. C. J. Andrews, Norfolk. —p. 162.
Dropsy in Children Due to Fat Starvation. A. B. Grubb, Cripple Creek. —p. 166.
Abdominal Hernia and "Rupture." (Standardization of Nomenclature). G. P. Laroque, Richmond.—p. 167.
Treatment of Hystericals in Relation to Automatism. T. A. Williams, Washington, D. C.—p. 168.
Semicentennial Meeting Medical Society of Virginia. Medical History of Richmond. J. N. Upshur, Richmond.—p. 170.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

September, 1919, **24**, No. 4

*Binocular Vision and Roentgenography. R. S. Burdon.—p. 101.
*Distortion of Stereoscopic Images. E. G. Hill.—p. 112.
Fractured Sesamoid Bone of Thumb. T. G. Evans.—p. 116.
*Distortion of Cardiac Shadows Produced by Varying Distances of Anticathode from Plate or Film. R. W. A. Salmond.—p. 117.
Roentgen-Ray Examination of Liver, Gallbladder, and Bile Ducts. R. Knox.—p. 119.

Binocular Vision and Roentgenography.—Burdon reports the results of an investigation undertaken to account for the various difficulties that occur in the use of roentgen rays stereoscopically, and to find a means of overcoming them.

Distortion of Stereoscopic Images.—While attempting to devise a method of localization directly applicable to stereoscopic images, the authors of this paper were struck with the peculiar discrepancies in the proportions of the image when portrayed under ordinary working conditions. They were thereby led to a mathematical investigation of the laws governing stereoscopic effects as applied to roentgenography. This investigation brought to light the remarkable fact that only under specially defined conditions is the stereoscope to be relied on to portray an accurate representation of reality, and, that if these conditions are not fulfilled, the resulting effects are distorted in a curious manner. A study of this question was made by the authors and their results show that, in order to obtain stereoscopic images giving a true representation or reality, the tube shift must always be made equal to the distance between the eyes, and also the plates must, in every case, be viewed at a virtual distance equal to that at which the roentgenograms were taken.

Distortion of Cardiac Shadows Produced by Varying Distances of Anticathode from Plate or Film.—The experiments made by Salmond show that to avoid gross distortion of the size of the heart and its great vessels, if an orthodiagraph cannot be used, the distance between the anticathode and the plate should be at least 3 feet, and more if it can be arranged conveniently.

British Medical Journal, London

Sept. 27, 1919, **2**, No. 3065

Epidemiologic Point of View. Greenwood.—p. 405.
*Experimental Investigation of Certain Materials Used for Nerve Suture. P. Sargent and J. H. Greenfield.—p. 407.
Combined Sclerosis with Heterotopia of Spinal Cord. G. E. Rennie, and O. Latham.—p. 410.
Diaphragmatic Hernia of Entire Stomach and Great Omentum. J. G. Andrew.—p. 412.

Materials Used for Nerve Suture.—An investigation was undertaken by Sargent and Greenfield with a view to ascertaining which of the many materials in general use as nerve sutures was least likely to produce harmful reaction in the delicate tissue of a nerve. They found that while plain thread or silk sutures give rise to no irritation, they are relatively unabsorbable. "Plain sterilized" or "plain iodized gut" are of value by reason of their rapid absorbability, but their low degree of tensile strength and their slightly irritating nature counteract these advantages. "Japanese silkworm gut" has great tensile strength and in rate of absorbability and the reaction which it causes holds a place midway between thread and silk sutures and catgut sutures. The authors advise that chemical antiseptics should be avoided in all suture materials.

Oct. 4, 1919, **2**, No. 3066

Two Cases of Chronic Renal Disease: Contrast in Treatment and Prognosis. J. Galloway.—p. 431.
Practical Considerations on Operation for Removal of Adenoids and Enucleation of Tonsils. W. H. Bowen.—p. 433.
Method of Enucleating Tonsils which Lessens Bleeding. P. MacDonald.—p. 437.
*Relation Between General Nervous System and Symptoms of "D. A. H." in Neurasthenic Patients. H. W. Davies and J. G. Priestley. —p. 430.
*Two Cases of Pneumococcus Meningitis of Bacteriologic Interest. H. A. Haig.—p. 431.

Symptoms of D. A. H. in Neurasthenic Patients.—Of 100 patients admitted to the hospital for "neurasthenia," thirteen showed well marked symptoms of D. A. H., and fifty-seven had the same condition in lesser degree. The evidence available does not show the same causal relation between previous infection or gassing and "neurasthenia" as holds in the case of D. A. H. No definite relation could be traced by Davies and Priestly between the abnormal Hering-Breuer reflex of D. A. H. patients and the altered tendon reflexes of neurasthenic patients. Attempts to control the Herring-Breuer mechanism by hypnotic suggestion were only partially successful. The respiration could be slowed for a short time while the patient was relaxed, but no permanent effect could be obtained.

Pneumococcus Meningitis.—The organism isolated by Haig from one case closely resembled *B. pestis*, and in the second case the clinical aspects were so closely allied to those seen in cerebrospinal meningitis that until the *B. pneumoniae* was isolated from the cerebrospinal fluid the case was considered to be one of meningococcal infection.

Glasgow Medical Journal

October, 1919, **92**, No. 10.

With the 1/1st Lowland Field Ambulance in Gallipoli. G. H. Edington. —p. 161.
Phenomena of "Serum Disease": Relation between Its Various Forms and Proteins of Horse-Serum. W. T. G. Davidson.—p. 182.

Journal of Laryngology, Rhinology and Otology, London

October, 1919, **34**, No. 10

Reports for 1918 from Ear and Throat Department of Royal Infirmary Edinburgh. I. Chronic Middle-Ear Suppuration. J. S. Fraser and W. T. Garretson.—p. 373.

Aqueduct of Fallopius and Facial Paralysis. D. McKenzie.—p. 338.
Treatment of Enlarged or Diseased Tonsils in Cases Where Surgical Procedures are Contraindicated. I. More.—p. 387.

Lancet, London

Sept. 27, 1919, 2, No. 5013

Differentiation of Mankind Into Racial Types. A. Keith.—p. 553.
*"Heteroserotherapy" in Pulmonary Tuberculosis. J. J. Perkins, R. A. Young and W. O. Meek.—p. 556.
Early Treatment of Mental Disorders. R. Eager.—p. 558.
"Twilight Sleep" In General Practice. G. H. Winch.—p. 563.
*Hyperkeratosis of Hair Follicles in Scurvy. H. Wiltshire.—p. 564.
Foreign Bodies in Esophagus and Respiratory Passages. I. Moore.—p. 566.
*Wheat Culture Medium. S. Otabe.—p. 576.

Heteroserotherapy in Pulmonary Tuberculosis.—Perkins and his associates employed the method of heteroserotherapy first suggested by Jousset in, 1912 in the treatment of eight cases of pulmonary tuberculosis. In three cases the administration of the pleural fluid was without any apparent effect on the symptoms or course of the disease. In two cases, where improvement coincided with treatment, it is admitted that these two patients had shown signs of improvement before it was commenced. Two were going steadily downhill in spite of other measures of treatment; in both the use of pleural fluid was followed by rapid and marked improvement, in both the cessation of the injections was followed by a tendency to relapse, and in both renewed improvement followed their resumption. Both these patients received injections of the same pleural fluid (from a case of "primary" tuberculous pleurisy) used within a few weeks of its preparation. In the remaining case, though the patient's general condition was good throughout, troublesome symptoms which had persisted for months disappeared within a few weeks of the administration of the pleural fluid. The authors are of opinion that the use of "heteroserotherapy" in this disease is worthy of further investigation.

Hyperkeratosis of Hair Follicles in Scurvy.—In dealing with about 3,000 cases of scurvy which occurred among Serbian troops, Wiltshire noticed that a condition of hyperkeratosis of the hair follicles was commonly present, in addition to those skin changes which are generally described as proper to this disease. The proportion of cases showing follicular hyperkeratosis amounted to no less than 87 per cent. The follicles which showed this change were usually limited to the lower extremities, the favorite sites being the front and inner aspects of the thighs and the upper parts of the legs. When they were numerous in these regions—and in some instances nearly every follicle was affected—those of the public hairs were often affected as well (20 per cent. of the cases), and sometimes those of the backs of the wrists and forearms (2.5 per cent.). Each affected follicle presented a hard conical swelling about the size of a pin's head, owing to a collection of horny epithelial débris which had accumulated at the follicle mouth. In some cases a thin atrophic hair, or a broken hair stump, projected from the summit of this cone; in others, the hair was wanting, having been shed or broken off flush with the surface. When dirt was present it tended to be incorporated with the material forming the cone, which then, on superficial examination, resembled an ordinary sebaceous comedo. By degrees the conical projection flattened down into a scale, under which, on examination with a lens, a new developing hair could be seen coiled up like a watch spring. At this stage, also, the appearance on casual examination resembled that of a comedo. Later the flattened scale was shed, the new hair erupted and was seen to be growing from a pink recovering follicle. These changes were not simultaneous in all the follicles. When a patient was admitted to hospital it was the rule to find some follicles in the stage of conical swelling with the hair still present, some in the stage of flattened scale covering a new developing hair, and others in intervening stages of broken or shed hairs. The whole process took place gradually and was spread over many weeks. Under treatment recovery was gradual.

Wheat Culture Medium.—Experimental results obtained by Otabe show that there is no more value in meat extract culture mediums than in wheat extract culture mediums. Otabe roasts the wheat (with or without husk) in an iron pan until it becomes brown. One pound of the roasted wheat without washing is placed into 1,600 c.c. of distilled water. This is boiled in Koch's boiler for half an hour, strained through a clean cloth, and made up to 1,000 c.c. with distilled water, if under this quantity. To this is added 0.5 gm. of takadiastase or ordinary diastase and the flask well shaken. The temperature of the contents at this time should be maintained at from 30 to 40 C. for one-half hour. Then the contents are filtered. The resultant fluid ought to be quite transparent with yellowish color, almost the same as ordinary meat broth. The fluid has a sweet smell, the reaction being slightly alkaline. Five gm. of sodium chlorid and 10 gm. of peptone albumin are added, the mixture boiled and filtered. To make wheat agar, 15 gm. (in winter) or 20 gm. (in summer) of agar are added to the above quantity. For the rest the preparation is almost the same as that of meat agar as usually prepared. Many special culture mediums can be made of the wheat broth and agar medium.

Oct. 4, 1919, 2, No. 5014

*Cardiac Massage as a Means of Resuscitation. L. E. C. Norbury.—p. 601.
*Intravenous Injection of Antimony in Filariasis. L. Rogers.—p. 604.
*Conjugal Tuberculosis. E. Ward.—p. 606.
*Specific Agglutinins for Pfeiffer's Bacillus in the Blood Serum of Influenza Patients. W. J. Wilson.—p. 607.
*Bronchospirochetosis in Egypt. N. Farah.—p. 608.
*Foreign Bodies in Esophagus and Respiratory Passages. I. Moore.—p. 609.
Case of Phlegmon of Neck. W. Appleyard.—p. 614.
*Retrograde Intussusception of Jejunum through Stoma of Gastro-jejunostomy. R. Warren.—p. 615.

Cardiac Massage and Resuscitation.—Cardiac massage is regarded by Norbury as a very important adjunct to the methods of resuscitation, applicable in cases of heart failure during surgical operations, as also in certain other conditions mentioned. With stoppage of the heart during the performance of an abdominal operation no time should be lost before starting subdiaphragmatic massage, and valuable time should not be wasted in the administration of drugs. Artificial respiration and cardiac massage should be carried out simultaneously. In such circumstances a very few compressions will usually reestablish the heart beat. If heart massage be contemplated, it should be commenced certainly within five minutes of cardiac arrest. Norbury resorts to massage after giving other methods a trial of only two minutes. It may be necessary to continue rhythmical compression of the heart for several minutes before spontaneous contractions occur. In one temporarily successful case, the heart was massaged for thirty minutes before it could be made to beat; previous to this ordinary measures had been tried ineffectively for forty-five minutes. Norbury is convinced that the subdiaphragmatic route is undoubtedly the most satisfactory of the various methods of access to the heart for purposes of massage. Artificial respiration should be commenced as soon as normal breathing has ceased, and should be persevered with until spontaneous breathing is reestablished. In obstinate cases, Norbury says, means should be adopted for raising the blood pressure, either by pressure on the abdominal aorta, bandaging the extremities, or the application of Crile's pneumatic suit, if this be at hand. Intravenous infusion of weak solutions of epinephrin in physiologic sodium chlorid solution is also very efficacious, and this is especially applicable in cases where intravenous infusion with physiologic sodium chlorid solution has already been started before the heart stopped, when epinephrin can be added to the solution quickly. In cases where an intravenous infusion is not being already carried out this may be done by using the internal saphenous vein, since the arms will be wanted for performing artificial respiration, or, as an alternative, the common carotid artery may be exposed in the neck, and a weak solution of epinephrin in physiologic sodium chlorid solution be injected forcibly toward the heart by means of a syringe with a fine needle attached. Injection of epinephrin solution into the heart cavities or wall is liable to set up fibrillary twitchings, and is of no use as a means of restoring normal cardiac contractions.

Antimony in Filariasis.—Rogers reports on the use of sodium antimonyl tartrate, 1:50 solution, in cases of filariasis. So far as his observations have gone all that can be said at present is that repeated intravenous injections of safe doses of sodium antimonyl tartrate appears to produce a definite diminution of the number of filarial embryos in the peripheral blood, which is probably due to a direct toxic effect on the embryos in view of the great decrease in the activity of their movements observed just prior to a rapid diminution in their numbers. Whether the treatment has any effect on the adult worms in the lymphatics or on the symptoms of the disease remains undecided, but the data so far obtained are sufficiently encouraging to make it advisable to continue the observations.

Conjugal Tuberculosis.—Out of 156 cases in which the mate of a tuberculous husband or wife was examined by Ward, 99 persons were found to be tuberculous, 16 suspect and 19 negative. Considering solely wives whose husbands were first notified, out of 120 cases 66 were tuberculous, 12 suspect and 42 negative. While among husbands of tuberculous wives, in 36 cases, 25 were tuberculous, 4 suspect and 7 negative. These figures have been collected over a period of five years. In 15 cases the tuberculous mate first notified has died, and in 7 cases both husband and wife have died of tuberculosis. After following up cases of conjugal tuberculosis for some years Ward takes the view that the great majority of the mates of tuberculous husbands or wives do sooner or later show signs or develop symptoms of tuberculosis; but that the great majority of those infected recover, and make a speedier recovery than most tuberculous patients. This may reasonably be attributed to an enhanced immunity conferred by the graduated doses of bacilli which they usually receive.

Pfeiffer's Bacillus in Influenza.—The investigation made by Wilson comprises the examination of forty-three separate specimens of blood. Ten of the specimens were from cases that were definitely not influenza, but included such conditions as vaccinia, mumps, bronchitis, etc. In all of these no agglutinins for the *B. Influenzae* were found. The remaining thirty-three cases were typical examples of influenza of a severe type and all of the patients were suffering from or were convalescing from bronchopneumonia at the date of the examination. Of the thirty-three the blood serum of eleven showed distinctly the presence of agglutinins for Pfeiffer's bacillus. The important point was that the positive cases still manifested elevation of temperature, while those that were negative had been afebrile for periods varying from six to thirty-two days. The study of three cases showed that the agglutinins very rapidly disappear from the blood when the patient becomes convalescent.

Bronchospirochetosis in Egypt.—Of twenty-two persons who spat bloody expectoration, Farah found the condition in six due to bronchial spirochetes, in twelve to tubercle bacilli, in two to *B. Pfeiffer*, and in two to bronchomoniliasis. The majority were more or less chronic coughers. In one case the disease was of four years' standing. Practically all the cases of bronchospirochetosis were taken for phthisis. Examination of the sputum revealed total absence of tubercle bacilli but the specimens were swarming with bronchial spirochetes of varying shapes. In no one case was the tubercle bacillus found in association. Besides hygienic and dietetic measures in the treatment of these patients, arsenic has been used with satisfactory results.

Foreign Bodies in Esophagus.—Of thirty-seven cases of coins in the air passages collected by Moore during a period of nearly a century (from 1819 to 1915), twenty-two were impacted in the larynx, three were in the trachea, nine in the right bronchus, one in the left bronchus, while the remaining two were stated to be in a bronchus (in which lung was not stated). Seventeen were coughed up (eight assisted by inversion), and two were coughed up into the mouth, swallowed, and later evacuated per anum. Death occurred in only four cases—from pulmonary tuberculosis, in three cases and apoplexy in one case. Thyrofissure was performed in one case, laryngotomy in two cases and laryngotracheotomy in three cases (in one of these cases the coin was coughed up, swallowed, and later evacuated per anum). Laryngeal forceps were used in six cases, no attempts at removal were made in two cases; peroral endoscopy was employed with success in three cases. The longest sojourn of a coin in the larynx was six years and in the bronchi ten years. The remote effects of the sojourn of coins in the respiratory tract were rarely associated with death. Only four deaths in thirty-seven cases is a small number compared with the deaths reported as resulting from the impaction of coins in the food passages. The inaccessibility of the respiratory passages to the coincatcher, bougie and probang, and their consequent safety from the rough treatment generally meted out to the esophagus, in Moore's opinion, appear to be the chief reason of these happy results.

Retrograde Intussusception of Jejunum Through Stoma of Gastrojejunostomy.—For thirteen years after gastrojejunostomy Warren's patient remained well. One year ago he began to have abdominal pain after meals and vomiting, which relieved the pain. There were intervals of remission of these symptoms of as much as a month. Two days before Warren saw him he had a worse attack of pain, associated with hematemesis, which continued. An emergency laparotomy was done. A few adhesions of the transverse colon to the abdominal wall were separated, the stomach and pylorus appeared normal in front. Turning up the stomach to examine the stoma, the distal loop of the jejunum coming from the stoma was found to be turgid and purple for 8 inches, at which point the entrance of a retrograde intussusception was found. The intussusception passed up the turgid distal jejunal limb, its apex projecting about 3 inches into the stomach through the stoma. The intussusception was reduced without great difficulty, and had started apparently about a foot below the stoma. The reduced gut was very edematous and purple, but at no point could any thickening suggestive of ulceration be felt. The gut appeared to be viable. The abdomen was closed. The duration of the operation was twenty minutes. After a slight brown vomit the next day the patient improved till the seventh day, when respiration became rapid, and he began to bring up offensive sputum, and finally died on the tenth day. The lungs were in a condition of severe bronchopneumonia with many abscesses; the abdomen, except for slight plastic peritonitis about the site of intussusception and remains of bruising of the intestine, was normal. The gastro-enterostomy as seen at operation proved to be in excellent order, of good size, and well planned. The reason of the retrograde intussusception and its relation to the late dyspepsia and vomiting does not appear certain.

Practitioner, London

October, 1919, **103**, No. 4

Orthopedic Surgery: A Review. A. H. Tubby.—p. 241.
Medical Notes. T. Horder.—p. 248.
Alkaloids in Anesthesia; their Use and Abuse. G. A. H. Barton.—p. 253.
Nine Hundred Abdominal Sections. K. A. Lees.—p. 263.
Interpretation of Headache, with Special Reference to that of Nasal Origin. W. Wilson.—p. 274.
Cure of Various Forms of Headache and "Faceache" by Electrical Methods. F. Hernaman-Johnson.—p. 297.
Skin Conditions seen in Egyptian Expeditionary Force. H. Davis.—p. 306.
Case of Retinal Detachment of Doubtful Origin. I. Taylor.—p. 310.
Value of Syphonage Method in Treatment of Severe Injury of Bladder. H. C. Orrin.—p. 312.

Archives des Maladies du Cœur, etc., Paris

July, 1919, **12**, No. 7

*Mechanism of Paroxysmal Tachycardia. G. Galli.—p. 289.
The Blood Pressure Warnings in Aviators. G. Ferry.—p. 304.
The Sphygmogram of the Pulmonary Artery. N. Betchov.—p. 313.

Paroxysmal Tachycardia.—Galli relates that in taking several hundred tracings of the heart action he has several times happened on the very instant when a paroxysm of tachycardia began and when it stopped. He analyzes the mechanism as he has thus caught it at work, and compares his findings with the various theories in vogue. They seem to confirm the assumption that the cause may be in some cases merely a functional nervous disturbance traceable to endocrine influences. The prognosis is naturally more favorable than in the cases of intracardiac origin.

Archives de Médecine des Enfants, Paris

October, 1919, 22, No. 10

*Plastic Peritonitis. L. Morquio.—p. 505.
"Injectable Turpentine" (Collobiase) in Treatment of Influenza in Children. Taillens.—p. 527.
*Serotherapy of Purulent Pleurisy in Infants. P. Nobécourt and J. Paraf.—p. 539.
Case of Periodical Vomiting with Acetonemia. M. A. Vassiliou.—p. 543.
Aplastic Anemia in Children. J. Comby.—p. 545.

Plastic Peritonitis.—Morquio has encountered at Montevideo four cases in which a child developed acute peritonitis, and a certain region in the abdomen swelled and became painful. Instead of the anticipated suppuration, however, the hard tumor and the pain subsided, and another patch developed at some other point. The disease progresses by waves in this way, but spontaneously subsides at last by the end of the third month, and the children seemed to be healthy when examined up to ten years later. The ages ranged from 3 to 13. In one case an operation was done for the assumed appendicitis but the appendix seemed to be normal. In another child, infection from the genitals seemed probable; in another the process started in the sigmoid region. But in all the peritoneal picture was the same. The complete and permanent recovery excludes tuberculosis.

Serotherapy of Purulent Pleurisy in Infants.—The three cases reported by Nobécourt and Paraf, in infants 2, 4 and 5 months old, testify to the excellent results from antipneumococcus serum in bronchopneumonia complicated with purulent pleurisy. The pneumococcus of type II was cultivated from the pleural effusion and from the nose and throat secretions. The treatment included also hot baths, cool moist packs of the thorax, injections of camphorated oil and inhalation of medicated oxygen. The antiserum was injected into the pleura after evacuation of the purulent fluid, and into the lung, in doses of 5 or 10 c.c. and 3 c.c. respectively. One of the children was injected with it also by the vein. The injections were kept up for three to five days, and a total of 30 c.c. in two and of 60 c.c. in the third case was thus used. Unmistakable improvement followed the serotherapy, and the infants all recovered from their pneumococcus infection.

Archives Mens. d'Obstétrique et de Gynécologie, Paris

June, 1919, 3, No. 6

The Hemostatic Apparatus of the Human Uterus. Keiffer.—p. 305.
*Twin Tubal Pregnancy in One Tube. Hardouin.—p. 331.
*Painless Delivery. Metzger.—p. 342.
*The Puériculture School.—p. 359.

Unitubal Twin Pregnancy.—Hardouin adds another to the thirty-six cases he has found on record in which two fetuses were found in the ruptured tube. He gives summaries of the entire number, and remarks that as only two fatal operative cases have been reported the total is probably larger, other unfavorable cases not having been published.

Painless Delivery.—Metzger gives nearly four pages of bibliography, set solid, dealing with painless delivery, and states that every one of the technics described for the purpose still represent some risk for the mother and for the child. Whatever the procedure or the substance, all agree that the parturient should be under the constant surveillance of a specialist. This being so, he adds, it is not to be wondered at that the more recent publications still extol ether or chloroform which, under good supervision, are no more dangerous perhaps than the newer methods.

The Puériculture School.—This new institution is a French-American foundation connected with the Paris Medical Faculty, but it is independent and autonomous. Its statutes are reproduced here with other details of the work. It is designed to develop and coordinate the teaching of puériculture to physicians, students, midwives and nurses; to create a permanent movement for the propaganda of child welfare work of all kinds; and to make appropriations for every form of scientific research tending to improve the hygiene for mothers and for children. The foundation is managed by a council of from fifty to seventy members appointed by the general assembly of the Association. To be a member of the Association one's name must be presented by two members, and be accepted by the council, and an annual subscription of $4 paid. The "benefactor" members pay $20, and the charter members $100, at least.

Journal de Médecine de Bordeaux

Sept. 25, 1919, 90, No. 18

Delousing Stations. Mandoul.—p. 375.
Clinical Diagnosis of Simple Traumatic Lesions of the Wrist. G. Chevalier.—p. 378.
*Scapulalgia. H. L. Rocher.—p. 380.
Organization of Spa System. (Stations hydro-minérales.) Cornet.—p. 383.
*Medical Impressions of the United States. Bégouin and Picqué.—p. 390. Cont'n.

Scapulalgia.—Rocher here reports two new cases of osteoarthritis of the humerus inducing severe pain in the scapula region. He remarks that certain environments and certain seasons of the year render nonsurgical measures practically impossible, while local injections to modify the tuberculous process sometimes actually whip up the process. In these and in his five other cases of scapulalgia a complete cure was finally realized by resection and immobilization. In all, the tuberculous lesion was in the head of the humerus. Some were of the white swelling type and others were dry caries.

Impressions of the United States.—Drs. Bégouin and Picqué were the official delegates, with Dr. Lemaitre, from France at the Victory Meeting of the A. M. A. and they here review their impressions of this meeting and of their trip afterwards through the country. They express regret that France was represented by only three delegates when even Belgium sent five and Great Britain thirty. They add that they tried to make up in activity for their small numbers, "we multiplied ourselves, taking part in all the ceremonies and meetings and presenting, each, one or more communications." They describe the Victory Meeting and also the university system here in general and in detail, the research institutes, etc., and relate that they were shown a piece of connective tissue which has been kept alive in an artificial medium for seven years in Carrel's laboratory. Every second day the edges are resected. They mention that at the Johns Hopkins "a reading knowledge of French and German is one of the requirements for admission, and the examinations are severe. Farther along the examining boards are more lenient" . . . "Each of the forty-eight states of the Union mistrusts its neighbor, and a physician admitted to practice in one state cannot practice in a neighbor state until he has passed a new examination. . . . In the United States—so modern from so many points of view—there are still custom house barriers for science."

Journal de Radiologie et d'Electrologie, Paris

September, 1919, 3, No. 8

The Coolidge Tube. J. S. Shearer.—p. 337. To be continued.
*Clinical Radiology of Base of Tuberculous Lung. F. Barjon and Longy.—p. 346.
*Fluoroscopy Simultaneously in Two Planes. H. C. Gage.—p. 356.
Absorption of Secondary Rays in Radiography. Duhem.—p. 359.
Radiography in a Case of Stenosis of the Ileum. L. Nahan.—p. 363.
Destruction of Large Part of Scapula by an Aneurysm. A. Laquerrière.—p. 365.
The Physical Laws of the Infinitely Small. H. Guilleminot.—p. 366.
Radiosurgical Table. Réchou.—p. 370.

Radiologic Findings at the Base of Tuberculous Lung.—Barjon and Longy analyze the findings at the base as a guide for the production of artificial pneumothorax. The research on eleven patients with chronic tuberculosis was confirmed by necropsy, and the details of each case are given. They demonstrate that any modification of the shape and of the shadow cast by a costophrenic sinus must be accepted as testifying to symphysis. There may also be adhesion without any appreciable abnormal findings in the sinus. The existence of symphysis does not necessarily hamper materially the play of the diaphragm. It may modify the amplitude of the excursions of the diaphragm, but the respiratory amplitude of the diaphragm is determined almost entirely by the respiratory capacity of the tuberculous lung. The radiologic examination of the sinus on each side disclosed abnormal findings in only six of the total twenty-two,

but necropsy showed symphysis in seven others also. In every case of symphysis the amplitude was reduced somewhat on that side but the adhesions were responsible for this only secondarily.

Fluoroscopy Simultaneously in Two Planes.—Gage is the consulting radiologist at an American Red Cross hospital at Paris. The method he describes, with illustrations, by which the part can be inspected in the screen from two sides at once, is particularly useful in the reduction of fractures.

Journal d'Urologie, Paris

September, 1919, 8, No. 3

*Hydronephrosis of Displaced Kidney. Rafin.—p. 121.
*Electric Destruction of Ureter Papillomas. G. Marion.—p. 129.
History and Future of Cystoscopy. A. Grandjean.—p. 135.
War Wounds of Pelvic Urethra. V. Richer.—p. 145.
*Calcified Cyst in Epididymis. F. Marsan.—p. 157.
Pararenal Hydatid Cyst. V. Pianson.—p. 165.
*Microscopic Examination in Urologic Practice. M. Vivier.—p. 169.
Surgical Treatment of Gonorrheal Epididymitis. L. Moreau.—p. 187.
Forceps to Hold Catheters. G. Marion.—p. 191.
Massage Instrument for the Prostate. Id.—p. 192.
Nonpenetrating Toothed Forceps. Id.—p. 192.

Hydronephrosis of Movable Kidney.—The kidney had sagged into the pelvis and had developed hydronephrosis which had become infected after a war wound of the knee. A catheter had been introduced into the sagging kidney and water introduced through it into the kidney induced the pain of distention of the kidney pelvis while water introduced into the bladder induced merely a desire for micturition. Recovery was soon complete after the nephrectomy although the latter had been complicated by a threatening hemorrhage. This and Rumpel's case, Rafin adds, are the only ones in which the correct diagnosis had been made before the operation.

Papillomas in the Uretera.—Marion is enthusiastic over his success in destroying with the electric current a polyp in the ureter in two cases. The electrode is a little narrower than that used for polyps in the bladder, but otherwise the technic is the same after the lesion has been located with the ureter catheter. A papilloma in the ureter should be suspected when a polyp is found in the bladder near the ureter mouth, in case of hematuria. Also when the ureter catheter releases suddenly a gush of bloody urine, or the catheter is arrested at some unusual point. His two patients were 64 and 76, and both had polyps in the bladder. The hematuria continued after they had been destroyed with the electric current, and the bleeding polyp was located by the arrest of the catheter when introduced to a depth of 5 cm. With a not very strong current he applied the *étincelage* for some time, moving the electrode about all the time but keeping it in the lower portion of the ureter. The pain was no more severe than during destruction of bladder polyps. In the younger woman the success was compromised by polyps in the kidney pelvis which compelled nephrectomy later.

Calcified Cyst in Epididymis.—Marsan reviews the history of epididymis cysts, and describes the case of a man who from childhood had had a bilateral tumor of the epididymis. It had never caused any trouble until at 52 sudden pain developed in the right hard tumor, and malignant disease seemed probable. The operation revealed calcification of the entire wall of the old cyst. The location and features of the cysts suggest that they had developed from embryonal relics of the wolffian body.

Microscopic Study of Urologic Cases.—Vivier gives two colored plates and nine photomicrographs in the text to illustrate the typical findings and their interpretation with disease of the urinary apparatus. Some of the photomicrographs show the findings in the same patient during the course of treatment.

Paris Médical

Sept. 27, 1919, 9, No. 39

*Indications for Prostatectomy. E. Michon.—p. 237.
*Partial Paralysis of Abdominal Wall. H. Roger.—p. 239.
*Lessened Resisting Powers of the Bronchi. H. Flurin.—p. 243.
*Meningeal Complications of Influenza. G. Schreiber.—p. 246.
*Phlorizin in Therapeutics. A. Leclercq.—p. 248.
Old Fracture of the Semilunar Bone. P. Japiot.—p. 250.

Indications for Prostatectomy.—Michon remarks that the renal filter is almost invariably more or less impaired by the time a *prostatique* reaches the surgeon. It is therefore extremely important to determine the extent of this impairment before the prostatectomy, as otherwise the postoperative azotemia common to all operations, superposed on a preceding high azotemia, may have disastrous effects. On the other hand, if the azotemia is induced or aggravated only by causes which the prostatectomy in itself will do away with, then even a high azotemia figure indicates merely that the prostatectomy had better be done at two sittings. Much graver is high azotemia when there is no retention or fever to explain it. Ambard's formula is instructive here, especially in the intermediate cases with the urea content of the blood between 0.70 or 0.90. The Ambard coefficient then will reveal whether the outlook is grave or not, and will enable us to seize the least unfavorable moment for the intervention.

Partial Paralysis of the Abdominal Wall.—Roger gives an illustration of a case of war wound of lumbar nerves which had entailed paralysis of part of the abdominal wall. The wall in this region had lost its elasticity and stretched, protruding like a woman's breast. No benefit has been realized in such cases from muscular exercise or electric treatment, and an abdominal band has to be worn, or the skin drawn up with quilted silk sutures.

Debility of the Bronchi.—Flurin ascribes to a local lack of vitality the inadequate resistance of the bronchi to infection in some persons. Ordinary saprophytes are able to set up infectious processes with this dystrophy of the respiratory "tree," and this opens the portals for disease in nose and throat. The *syndrome de débilité bronchique* is characterized by signs revealing the hyperesthesia of the mucosa, the unstable circulation and the special secretory response to any causes liable to stimulate secretion in the mucus glands. These signs may be detected even before the bronchial process has developed, so that it can be warded off by proper treatment.

Meningeal Complications of Influenza.—Schreiber comments on the fact that no one has published cases of purulent pneumococcus meningitis in the course of influenza, to his knowledge. Capitan has reported the discovery of pneumococci in the false membranes in the space around the optic chiasm, but the cerebrospinal fluid even in these cases was clear and sterile. In Rosenthal's two cases of alleged influenzal meningitis the fluid was opaline rather than purulent. Netter found a distinct cellular reaction in the spinal fluid in his three cases of influenzal serous meningitis, with recovery of two of the three patients. In his own experience, Schreiber encountered only one case of serous meningitis and the young soldier recovered after lumbar puncture. There were 20 or 30 lymphocytes in each field. From 8 to 10 is said by some to be a common finding in influenza as a transient meningeal reaction, but he saw it in only three cases. Influenzal meningism occurs more frequently. The symptoms suggest meningitis but the fluid keeps normal. Lumbar puncture thus clears up all these cases, and it is interesting to recall the "pseudo-meningitis" of the pandemic of influenza in 1890, which was before the days of lumbar puncture.

Phlorizin in Therapeutics.—Leclercq calls attention to the excellent results he has obtained with phlorizin in treatment of dyspnea, cardiorenal disease and the acidosis of diabetes. It acts where other diuretics fail. He used ampules of 0.005 or 0.01 gm. of the phlorizin dissolved in a 2.5 per cent. solution of sodium carbonate; 1 c.c. of this solution dissolves 0.005 gm. of the phlorizin. Intervals of four or five days between the injections seem the preferable technic. Two hours after the injection there is an output of sugar which keeps at about 8 gm. for four hours at most. He never found any sugar by the twelfth hour. The diuresis increases during the first few days up to the eighth day, then remains stationary, and begins to go down the ninth and the tenth days. There is no freshet, as after theobromin and digitalis, but it aids in the throwing off of the substances from which

urea is derived, and thus seems to act effectually in combating nitrogen intoxication. Dietetic restrictions, repose, sodium bicarbonate and four injections of phlorizin in the course of seven days banished the acidosis in a case of lean diabetes with the Gerhard reaction intense. Under this treatment 4 liters of urine were voided daily as the acidosis subsided, with 58 gm. of sugar.

Presse Médicale, Paris

Sept. 18, 1919, **27**, No. 52

*Etiology of Appendicitis. A. Riff.—p. 512.
The Albumin Reaction in the Sputum. M. Salomon.—p. 523.
Oct. 1, 1919, **27**, No. 55
*Serotherapy of Hemorrhage. H. Dufour and Y. Le Hello.—p. 553.
Abortive Treatment of Syphilis. L. Fournier and Guenot.—p. 554.
Abscess in Breast with Inverted Nipple. J. Duvergey.—p. 555.
Pleural Spirillosis in Traumatic Hemothorax. E. Lancereaux.—p. 556.

Etiology of Appendicitis.—Riff declares that no evidence has been presented yet that disproves Letulle's assertion that appendicitis is always of intestinal and never of blood-borne origin, or the assumption that the primary lesion is some breach in the epithelial lining of the appendix. The oxyuris has been incriminated in the making of these primary breaches in the epithelium, as we know that this helminth finds a snug lurking place in the appendix. Riff found the oxyuris in the appendix in 48 per cent. of 152 operative cases at Strasbourg. In one appendix he counted 147 males and 50 females; in another 58 males and 201 females, and in a third there were over 400. In a recent series of 63 cases in children under 15, at Paris, the oxyuris was found in the appendix in 80 per cent. These findings convinced him of the causal rôle of the oxyuris, and this explains the immunity of young infants, the prevalence of the disease among the young, and its frequent familial occurrence. The discovery of the oxyuris may turn the scale in diagnosis in dubious cases, and if we finally learn how to expel the oxyuris we may hope to reduce the prevalence of appendicitis.

Seric-Serum for Controlling Hemorrhage.—Dufour and Le Hello noted that an anaphylactic reaction in a patient with hemorrhagic purpura seemed to modify the blood in such a way that the tendency to hemorrhage was arrested. This suggested that a therapeutic anaphylaxis might be induced which would arrest hemorrhages impossible to control by other means. They selected for this the method of passive anaphylaxis induced by injection of a small amount of serum from a rabbit in a state of anaphylaxis. They injected the rabbits several times at regular intervals with small doses of diphtheria antitoxin by the vein. They are bled the twenty-first day after the first injection, and their serum injected into guinea-pigs sensitizes the latter immediately, and induces manifest hypercoagulability. Injected subcutaneously in human beings, it almost immediately induces hypercoagulability and has thus arrested hemorrhage in numerous cases. Normal rabbit serum does not seem to modify the coagulation of the blood in man. A number of cases are described in which this seric-serum against hemorrhage, as they call it, arrested grave hemophilic and other postoperative hemorrhages, severe recurring uterine hemorrhage in a young woman, and fulminating epistaxis. They declare that nothing to compare with this prompt arrest of the tendency to hemorrhage has ever been realized with other measures. The seric-serum was injected in the dose of 10 c.c. and the effect was evident in about four hours, one hour or two hours in the different cases. In none of the cases were more than two injections needed.

Revue Mens. de Gynécologie et d'Obstétrique, Paris

July, 1919, **14**, No. 7

*Radium Treatment in Gynecology. E. Rouffart.—p. 241.
*Diagnosis of Impending Phlebitis. S. Remy.—p. 255.
*Embryotomy. J. Duque de Estrada.—p. 260.

Radium Treatment in Gynecology.—Rouffart here reviews the ultimate outcome in cases of gynecologic disease in which radium treatment had been applied five years ago. He mentions parenthetically the ever increasing numbers of uterine cancers encountered during the years of war. He says that operative measures are preferable to radium treatment, but the latter is a useful adjuvant and in inoperable cases may induce long survival, as also after a palliative operation. The cancer heals over and the patient seems reborn, but after an interval of from one to four years the malignant disease reappears and radium then does not modify it. The postoperative exposures to radium do not cause any complications, but he reports a case of rapidly developing cancer in a woman of 27 which was treated with radium in three exposures and then the uterus was removed. The woman returned a month later with a gangrenous patch in the floor of the bladder, and she is still wearing a urinal, but there has been no return of the cancer during the five and a half years since. This is the only grave accident that has occurred from radium in his practice. The case teaches the necessity for extreme caution when radium is applied preliminary to an operation. This has the further disadvantage that it toughens the tissues and renders the operation harder. A palliative operation followed by radium exposures is much better.

In conclusion he expatiates on the efficacy of radium in arresting hemorrhages from uterine fibromas. In his fifty cases of the kind the promptest results were obtained when the tumor in the small pelvis did not reach higher than two or three fingerbreaths above the pubis, but equally good results were obtained with tumors extending to or beyond the umbilicus, only this took more time. By gaging the doses, the hemorrhages can be arrested without bringing on the artificial menopause, but the hemorrhages may recur eight or ten months later, requiring renewed radium treatment. Then the menopause sets in and the fibroma becomes reduced in size as a rule.

Menace of Phlebitis.—Remy advises absolute bed rest with measures to soothe the inflammation and reduce congestion when a pregnant woman or a parturient develops symptoms suggesting impending phlebitis. This proved all that was necessary in a case reported in which there was a history of phlegmatia alba dolens after the second of the five pregnancies. Remy denounces the idea of interrupting the pregnancy from fear of impending phlebitis.

Embryotomy.—Duque de Estrada writes from Mexico to extol the advantages of the embryotome of which he gives an illustrated description. The metal conductor is 37 cm. long and curves. An elastic steel spring with a ball at the tip passes through the conductor and coils in concentric circles when forced out of the tip of the conductor. To the other end of the steel spring is fastened the strong chain to do the cutting; no saw is necessary. The ball-tipped spring glides along the body of the fetus from axilla to axilla or at the neck, and appears in the vagina. Pulling on the spring draws the Chassaignac chain into its place and the embryotomy can be completed without the slightest injury of the uterus.

Revue Neurologique, Paris

July, 1919, **26**, No. 7

Congenital Intraspinal Cyst. K. H. Krabbe (Copenhagen).—p. 561.
*The Strümpell Phenomenon. Noica (Bucharest).—p. 567.
Case of Giantism with Acromegaly and Manic-Depressive Psychosis. C. I. Parhon and A. Stocker (Jassy).—p. 573.

The Strümpell Phenomenon.—Noica remarks that in normal subjects, and especially in the young, there are movements in the other leg, when one leg is flexed on the thigh, which resemble the movements in Strümpell's phenomenon. In healthy persons the movements are not elicited unless some effort has to be made to overcome resistance, as when a hand is placed lightly on the subject's knee. He explains how this and other facts observed confirm the assumption that the Strümpell phenomenon is a normal associated movement but modified by the loss of the motility of the paralyzed extensors, while the motility of the tibialis anticus has been retained. The infant learns to make associated movements before it can make isolated movements. A man recovering from motor aphasia may be able to pronounce a certain word when he is unable to pronounce the letters separately that form the word. A lesion in the pyramidal tract partially suppresses volitional control of movements and especially of isolated

movements, carrying us back, as it were, to that early stage in our evolution in which only associated movements were possible.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Sept. 11, 1919, 49, No. 37

*The Course in Operative Surgery. G. Hotz.—p. 1369.
*Autodrainage of Ascites. A. Schirmer.—p. 1373.
Bacilli Resembling Influenza Bacilli as Pus Producers. J. L. Burckhardt.—p. 1381.
*The Swallowing Reflex Elicited from the Eye. W. F. Schnyder.—p. 1388.
Sources of Error in Determination of Volume of Blood Corpuscles. J. Aebly.—p. 1393.

Practical Training in Surgery.—Hotz has discarded the old system of giving lectures on surgery over the cadaver, and has introduced the system of teaching the students from the patient, as the operation is being done. This throws a great burden of responsibility on the teacher, but the gain for the students is immeasurable. The students are separated in small groups and one serves as first and one as second assistant, while others have charge of the anesthetic and the instruments. Early in the term they are taught about anesthesia, dressings, surgical technic and all that will be called on for the operations. Just before the operation each group is instructed in the theoretical data and in the anatomy of the region, and pictures of it are inspected. Each group gathers around an operating table with the professor, the adjunct professor or an experienced assistant. These do the operation but in mild cases they may give the knife to a student and take his place as assistant. The rule is that from the first washing of the patient until he is put back to bed, the medical students do everything that is done, all of course under strict and constant supervision by the surgeon and the nurse.

Subcutaneous or Retroperitoneal Drainage for Ascites.—Schirmer reports the later outcome in the case of ascites in which Tavel drained the fluid into the subcutaneous tissue in 1910, using a glass spool to hold the communication open. No other case is on record of long permanent success. These operations have been done otherwise only to relieve ascites from cirrhosis of the liver. In Tavel's case the ascites was of the premenstrual type in a young girl. The fluid thus artificially drained into the subcutaneous tissue formed large cushions in the groins which sagged down on the thighs. These water bags were finally resected in 1918. The diversion of the ascitic fluid had remarkably improved the general health, but the symptomatic benefit was counterbalanced by the deformity resulting from the passive edema of the subcutaneous tissue, and the proliferation of connective tissue in the interstices, this proliferation further impeding absorption. Conditions in the retroperitoneal and lumbar tissues are more promising for absorption, as he explains, pointing out further that the fluid might work its way from here down into the legs, thus obtaining a very large area for absorption. The glass device for draining was cast off as a foreign body in Tavel's case. Fish bladders and rubber drains are liable to this same drawback, but calf aorta hardened in formaldehyd seems to answer the purpose perfectly. This heals in place and becomes organized without becoming obstructed. Possibly merely a large hole in the peritoneum might answer the purpose without an actual drain. He lists the publications on autodrainage of ascites, and gives an illustration of Tavel's case before and after the removal of the huge water cushions eight years after the drainage had been established.

The Swallowing Reflex from the Cornea.—Schnyder was unable to confirm that a swallowing reflex could be induced by excitation of the cornea or that if it occurred it indicated abnormal conditions in the cornea.

Annali d'Igiene, Rome

May, 1919, 29, No. 5

*The Diet in Wartime, and the Lessons Therefrom. F. Rho.—p. 269.
Average Weight in Italian Navy and the Dietary. C. M. Belli.—p. 277.
*Vitality of Influenza Bacillus in Pathologic Products and in Cultures. M. Carpano.—p. 290.
*Deficiency Diseases, II. A. Scala.—p. 286. Conc'n.
The Venereal Peril after the War. V. Montesano.—p. 302
Compulsory Registration of Infectious Diseases. G. Pecori.—p. 329.
Bacteriologic Diagnosis of Diphtheria. G. Sampietro.—p. 341.
Cold Storage and Frozen Meats. A. Scala.—p. 345.

Food in Wartime.—Both Rho's and Belli's articles were read at the Inter-Allied Sanitary Conference held at Paris last March. Belli's statistics include 4,418 sailors weighed after their sixth and eighteenth months in the service. The average weight was below 60 kg., and they all except 7.9 per cent. had gained in weight. This is accepted as evidence that the diet represented adequate amounts of calories although the ration averaged only 2,800 or 2,900 calories.

Vitality of the Influenza Bacillus.—Carpano's experiments show that the influenza bacillus may long survive in a moist medium, even up to three months. When desiccated it dies in about four days. In sputum, effusions, and blood in the test tube it dies in about twenty days. Horse serum and hemoglobin-serum-agar offer the most favorable conditions for its survival of all the mediums tested. The most favorable temperature for its conservation is between 32 and 37 C.

Deficiency Diseases.—Scala presents the present status of our knowledge of the probable causes of beriberi, pellagra and other of the so-called deficiency diseases, and emphasizes the importance from this standpoint of the mineral elements in the food. Deductions from experiments in this line have not been conclusive to date as they have not reproduced natural conditions.

Gazzetta degli Ospedali e delle Cliniche, Milan

Aug. 14, 1919, 40, No. 65

*Effect of Paracresol and Indol on the Circulation. B. Vasoin.—p. 673.

Aug. 24, 1919, 40, No. 68

Clinical Notes on 10,921 Native Patients at Dispensary in Northern Africa. F. Mazzone.—p. 710.

Aug. 28, 1919, 40, No. 69

Postoperative Treatment and Complications of War Wounds of the Brain. A. de Castro.—p. 723.

Aug. 31, 1919, 40, No. 70

Principles for Treatment of Bone and Joint Lesions as Learned from War Surgery. M. Fasano.—p. 731.

Effect of Paracresol and Indol on the Circulation.—Vasoin's experiments on cats and rabbits have apparently established that indol and paracresol have a vasoconstricting action. Paracresol induced in the animals an abrupt and pronounced drop in the blood pressure, and both this and indol reduce both the systolic and the diastolic excursions of the isolated heart.

Sept. 11, 1919, 40, No. 73

*Case of Chorea of Esophagus and Stomach. G. Ceresole.—p. 770.

Chorea of Esophagus and Stomach.—The young man whose case is described by Ceresole was of a weakly, nervous constitution and the contrast meal showed that the esophagus was the site of irregular choreic movements changing about from point to point, peristalsis and antiperistalsis occurring irregularly and even together. The stomach showed similar irregular movements, with spastic closure and relaxation of the pylorus and the cardia. While these motor convulsions were going on in the esophagus and stomach, the abdomen seemed to be entirely at peace and the movements of the diaphragm were regular and normal. This localized chorea dated from childhood, and did not cause pain or vomiting or materially impair the general health.

Riforma Medica, Naples

Sept. 13, 1919, 35, No. 37

*Multiple Endocrine Disturbances. V. Fici.—p. 778.
*Agglutination Test in Diagnosis of Typhus. A. Montefusco.—p. 782.
*Colon Bacillus Infection of the Eye. L. Betti.—p. 784.
*Mammectomy for Cancer. N. Federici.—p. 786.
*Varices on the Legs. E. Aievoli.—p. 786.

Multiple Endocrine Disturbances.—Fici entitles his article "Sindrome pluriglandular," as the woman of 33 presented unmistakable evidences of deficient functioning of the suprarenals, pituitary body and ovary, along with status lymphaticus, and the spleen was much enlarged. None of the symptoms was pronounced enough to classify the case as one of Addison's disease, etc., but the combination of the

whole was grave and proved fatal in about seven years. She ascribed the beginning of her disturbances to sorrow over the loss of her child. The severe headaches and the rebellious eczema of the legs were evidently traceable to the pituitary and the endocrine anomalies. There was no reaction to injections of pituitary, ovary or thyroid, and only slight to epinephrin, but there was a good reaction to atropin and also a partial reaction to pilocarpin (no sweating); none to tuberculin. The tendency to vomiting, diarrhea and chronic bronchitis of the asthma type suggested vagotony.

Agglutination in Typhus.—Montefusco remarks that during the present small epidemic of typhus at Naples, many physicians recognized the disease who had never seen typhus before, but the differential diagnosis is difficult in the first sporadic cases—the most important for prophylaxis. Agglutination of *Proteus X* occurred constantly—1:50 to 1:800—in the 100 cases of typhus in his experience, with a single exception. The reaction disappears completely during convalescence. The test was constantly negative in a large number of patients with acute diseases other than typhus except in one patient with smallpox. The agglutination does not become manifest until the eruption has appeared and by that time the clinical diagnosis is practically certain, but it may be important for a retrospective diagnosis and to detect atypical cases.

Colon Bacillus Eye Disease.—Betti reports two cases of panophthalmitis in men of 56 and 38, following a contusion of the eye. In four and two days the anterior chamber was full of pus, the vitreous all pus, and the eyeball had to be removed. Cultivation of the germs in the eye and inoculation of rabbit eyes demonstrated that a highly virulent colon bacillus was responsible. In a third case phlegmonous dacryocystitis developed three years after a contusion of the region which had been followed by recurring catarrhal conditions in the conjunctiva after the first stormy inflammation. The dacryocystitis perforated spontaneously and recovery was soon complete after dacryocystectomy. He cites a few other authors who have reported similar colon bacillus dacryocystitis. The colon bacillus is thus able to induce acute processes in the eye and its annexes, with a destructive course.

Exenteration Mammoctomy.—Federici applies this term to the technic he has applied in two cases of cancer in its early stages. He cuts a pear-shaped flap encircling the breast, except that the incision skips the distance along the median line. The small end is at the axilla and he turns this flap of skin upward and inward. After excising all morbid tissue, he returns the flap to place and sutures without drainage. The outcome during the few months to date in his cases has been excellent.

Treatment of Varicose Veins.—Aievoli calls attention anew to Schiassi's method of injecting an iodin-iodid solution into the vein as a simple and effectual means of combating varices in the legs. He describes it in detail but without illustrations.

Annaes Paulistas de Med. e Cirurgia, S. Paulo, Brazil

June, 1919, **10**, No. 6

*Quartan Malaria in S. Paulo. A. G. Guimarães and Mendonça Cortez.—p. 130.
Infant Feeding. Olindo Chiaffarelli.—p. 133. Cont'n.

Quartan Malaria in S. Paulo.—A colored plate shows the microscopic findings in what is supposed to be the first authentic case of quartan malaria published in the state. The plasmodium in question seemed to differ in certain minor respects from the typical malarial parasite.

Archivos Brasileiros de Medicina, Rio de Janeiro

May, 1919, **9**, No. 5

*The Pandemic of Influenza in 1918. J. Moreira and others.—p. 283.
*Brazilian Publications on Influenza. W. de Almeida.—p. 435.

The Pandemic of Influenza.—This is a special number of the *Archivos*, its 200 pages being devoted to various aspects of the 1918 pandemic especially the experiences at Rio. Juliano Moreira, Murillo de Campos and de Almeida discuss the mental disturbances and the influence of influenza on mental disease; Ferreira, influenza in infants; Pinto, the prodromes; Balena, postinfluenzal Addison's disease, and Moreira da Fonseca, suprarenal insufficiency in influenza, while others review their experiences.

Brazilian Bibliography on Influenza.—De Almeida lists with brief summaries seventy-seven articles, theses or pamphlets that have been published by Brazilian writers on influenza. A review is also given of the suggestions that have appeared in various countries on treatment of influenza.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

August, 1919, **3**, No. 8

*Epileptic Gastric Crises. S. Martinez Gómez.—p. 453.
Rebellious Gastric Ulcer with Epigastric Hernia. C. Orcera.—p. 458.

Epileptic Gastric Crises.—Martinez describes the case of a man of 39, a gardener, apparently robust, who for three years had had attacks of pain in the stomach accompanied by great depression and sometimes by loss of consciousness and convulsions. During the intervals he felt well but said he had always had "a delicate stomach." The pain during the attacks was agonizing at times, and it reappeared each day for three days; then followed a free interval of about three months on an average. By exclusion, the only diagnosis possible semed that the attacks were a manifestation of tardy epilepsy. In time the gastric symptoms grew less pronounced while the epileptic character of the seizures became unmistakable. No treatment addressed to the stomach had the slightest effect and the ordinary bromids were not borne well by the stomach, but considerable relief was obtained with strontium bromid which seemed to be well tolerated. The intervals grew longer and the seizures less severe. The fetid breath and large amounts of indican in the urine just before the seizures were combated with dieting, laxatives, hexamethylenamin and sodium benzoate by the mouth.

Archivos de Ginecopatía, Obstet. y Ped., Barcelona

June, 1919, **23**, No. 6

*Puerperal Psoitis. J. Gorostegui.—p. 121.
Placenta Praevia plus Eclampsia after Induced Delivery at Eighth Month; Recovery. J. Peláez Brihnega.—p. 128.
Case of Intra-Uterine Ichthyosis. Iraeta.—p. 132.

Puerperal Psoitis.—Gorostegui gives an illustration of the peculiar attitude of the woman with febrile psoitis after a twin pregnancy with great autointoxication and premature delivery at the seventh month. The fever persisted after the uterus had been cleared of putrefying scraps, and there was much pain in the left iliac fossa, with tympanism. The woman held the left leg flexed and in abduction and outward rotation all the time as she lay in bed. An incision above Poupart's ligament where the tumor and the tenderness were most pronounced released a large amount of fetid pus and recovery was soon complete.

Brazil-Medico, Rio de Janeiro

Aug. 2, 1919, **33**, No. 31

*Ocular Prostheses. Hilario de Gouvêa.—p. 241.

Aug. 9, 1919, **33**, No. 32

Clinical Forms of Granulomatosis. Alfredo da Matta.—p. 249.

Artificial Eyes.—De Gouvêa reproduces the photograph of a man showing ideal conditions in the orbit with an artificial eye mounted on a rabbit's eye which had been implanted in the orbit about twelve years ago. Since he learned in 1908 that rabbits were very subject to contamination with syphilis, he has not ventured to apply this technic, notwithstanding its advantages. In another case he introduced a ball of paraffin and the illustration shows good results with this also, perfect when the eyes are quiet, but there is some asymmetry with conjugated movements of the eyes.

Crónica Médica, Lima

July, 1919, **36**, No. 673

*Influenza and Tuberculosis. Anibal Corvetto.—p. 231.
Endocardiac Localizations of Rheumatism. E. Odriozola.—p. 234.
Indications for Cesarean Section. Jorge Romero.—p. 238.

Influenza and Tuberculosis.—Corvetto relates that none contracted influenza of the fifty-two tuberculous inmates of

the public hospital although influenza patients were in the ward with them. Similar experience with certain reservations are reported among the tuberculous frequenting a preventorium at Lima.

Gaceta Médica de Caracas, Venezuela

July 31, 1919, **26**, No. 14

The Oxytocic Action of Quinin. J. de D. Villegas Ruiz.—p. 145.
Sodium Cinnamate in Treatment of Tuberculosis. J. R. Pérez.—p. 147.
Aphorisms of Clinical Urology. M. A. Velásquez.—p. 151.

Medicina Ibera, Madrid

Aug. 30, 1919, **8**, No. 95

Polyorganotherapy. A. Guardia Abadal.—p. 153.
*Vaginal Gauze Holders. Victor Conill.—p. 156.
*Differential Diagnosis of Prefrontal Tumors. W. López Albo.—p. 158.

Vaginal Gauze Holders.—Conill applies the term "conductor" to an instrument shaped like a very long needle, slightly curved and with the tip cleft like forceps with a ring below to tighten the grip. He uses these to pass gauze from the abdomen down into and out of the vagina in abdominal hysterectomy operations, instead of groping blindly for the gauze from below. An illustration is given of these vaginal conductors, also of a special forceps for grasping the uterus without injuring the surface, and also of an angiotribe which allows the sutures to be taken while it is in place. It can then be removed without interfering with the sutures.

Prefrontal Tumors.—López Albo reports two cases of tumor of the frontal lobe originating in the dura and sparing the brain proper. The tumor was a sarcoma in both cases and there has been no recurrence during the three years to date since its removal in the first case. The psychoparalytic changes in the other case were intense, and the woman succumbed to postoperative infection. The symptoms in the first case included hemiparesis and paraparesis, rigidity of the muscles of neck and thorax without convulsions, tremor or sensory disturbances, and mental impairment of the depression and dementia type. In the other case, changes in speech and dementia were accompanied by a fine tremor of the arms and exaggeration of the reflexes. The tumor in this case was as large as a mandarin orange but, as with prefrontal tumors in general, it was easily enucleated.

Sept. 7, 1919, **8**, No. 96

Proper Doses for Diphtheria Antitoxin. A. Sobrino Alvarez.—p. 173.
Bone Complications in Typhoid. J. Alvarez Sierra.—p. 174.
*Medicated Organotherapy. F. Alayo Ferrer.—p. 175.

Associated Organotherapy.—Ferrer discusses the advantages of combining certain inorganic drugs or organ extracts with other similar extracts. He warns that we must associate in this way only those drugs that have a stimulating action on glands. The combination of bromids and ovarian extract, of iron with extract of the corpora lutea and of calcium with thymus or other organ extract he regards as promising.

Observador Médico, Mexico

Sept. 15, 1919, **1**, n. s. No. 3

Autogenous Bacteriotherapy. T. G. Perrin.—p. 39. Cont'n.
Glandular Laryngitis and its Treatment. J. Trueste.—p. 47.

Plus-Ultra, Madrid

May, 1919, **2**, No. 11

Recent Progress in Electroradiology.—p. 235; in Heart Disease.—p. 246; in Instruments.—p. 252; in Blood Diseases.—p. 268; in Otorhinolaryngology.—p. 272; in Bacteriology.—p. 284; in Medicine.—p. 288.
Subcutaneous Treatment of Constipation. F. Luis Yagüe.—p. 249.
*Dynamics of the Heart. Misael Bañuelos.—p. 259.
*Operation for Sagging and Overstretched Kidneys. M. Serés.—p. 263.
*Meningitis. J. A. Palanca.—p. 270.
*Pathologic Biology and Pediatrics. Enrique Suñer.—p. 275.
*Art of Writing Medical Articles. Santos Rubiano.—p. 278.
*Chronic Passes into Acute Leukemia. Jiménez Asúa.—p. 282.
Paralysis Agitans from Medicosocial Standpoint. D. J. Cortés.—p. 290.

Dynamics of the Heart.—Misael Bañuelos reports the results of experimental research on arrhythmias, on the stimulation of the vagus, on the arrhythmia induced by epinephrin, etc. He warns that the effect on the heart from stimulation of the vagus may differ widely according as the ventricles are or are not distended at the time. It is necessary therefore in all such tests to note whether the ventricle is full or empty.

Fascia Plastic Fixation of Sagging Kidney.—Serés gives eight illustrations of the technic for utilizing a broad rectangular strip of aponeurosis cut from the fascia lata to suspend the kidney in its proper place. The strip is slit half way its length to fit around the pedicle, and the ends are then drawn up and sutured to form an outer capsule around the kidney. Three double threads are then passed through this outer capsule at the center and near the poles, as with Guyon's procedure, and these threads are then used to suspend the kidney in its proper place, passing them through or over muscles or ribs as indicated. With this technic the kidney tissue proper is left intact. Another procedure which he calls *renoplicatura* he used to reduce the size of the kidney after hydronephrosis. Seven fine catgut threads were quilted back and forth over the inferior pole of the kidney, without perforating the wall. The ends were drawn up and tied and the normal outline of the kidney was thus restored.

Meningitis.—Palancra's photomicrographs reproduce the findings in three interesting cases of meningitis. The meningococcus was found in one, the pyocyaneus in the second, and the third was of influenzal origin.

Pathologic Biology.—Suñer discusses anergy and the predisposition to infections and anaphylaxis as their manifestations are encountered in children. Among the practical points emphasized is the importance of secondary infections and the imperative necessity for warding them off. He remarks in regard to anaphylaxis that it is in epidemic cerebrospinal meningitis that anaphylactic states are most to be dreaded. To avoid them he advises injecting 10 or 20 c.c. of the antiserum subcutaneously the first day; the analysis of the spinal fluid once made, then 30 or 40 c.c. can be injected intraspinally without inconvenience. If haste is necessary, he advises intraspinal injection of 2 c.c. and after waiting an hour or two, injecting the full amount 20 or 30 c.c. Or else, 1 c.c. of a dilution of 5 c.c. in 10 c.c. of saline could be injected by the vein. If there is no reaction to this in three or five minutes, then 3 c.c. of the same dilution can be injected, and if no disturbance follows, then 10 c.c. can be injected, and after waiting another two minutes, the final injection of 25 c.c. of the same dilution can be made. From this moment the patient is vaccinated against anaphylactic disturbance, and in ten minutes can be given by the vein or spinal canal up to 30 c.c. of the undiluted antiserum. He quotes extensively from Besredka's recent work on anti-anaphylaxis which throws more light on the biologic principles involved.

The Art of Medical Writings.—Santos Rubiano holds up as a model of probity and precision in medical writings the oldest one known, found on a votive tablet in the temple of Esculapius. It states: "The god told an old soldier, named Valeru Aper, to take the blood of the white cock, mix it with honey and anoint his eyes with this for three days; the Soldier did so." Santos deplores the frequent "kleptomania of ideas," and says of the conclusions of an article that they should be the necropsy of the body of the article, and should distinguish between what is postulated and what is asserted, and the deductions therefrom.

Transformation of Chronic Myeloid Leukemia Into the Fulminating Type.—This occurred in two cases described in full; in one under the influence of intercurrent influenza when the general condition had been so much improved under cautious roentgen treatment that long remission of symptoms was anticipated. In the other case chronic leukemia in a person with a history of tuberculosis had flared up several times, and the last time this occurred the streptococcus was cultivated from the blood. In this case also there had been marked improvement under roentgen treatment. It seems plausible to assume that the transformation of chronic into acute leukemia after roentgen treatment is due to toxic infectious agencies, and that the action of roentgen treatment needs to be revised. The toxic-infectious agencies may be those responsible for the disease in the first place, or they may be from intercurrent disease.

Repertorio de Medicina y Cirugía, Bogotá

August, 1919, **10**, No. 11

*Sarcomas in Long Bones. Pompilio Martinez.—p. 570.
Bullet Wound of Lung and Pericardium. J. Anzola Escobar.—p. 588.
Treatment of Syphilis. M. Antonio Rueda.—p. 592. Conc'n.

Sarcomas in Long Bones.—Martinez gives illustrations of several of his 13 cases of extensive sarcoma of the long bones, and states that 80 per cent. were in males and that the age ranged from 20 to 40, with two cases in persons over 50. In almost every instance there was a history of contusion of the region. In his latest series the sarcoma was in the upper end of the femur in 5; of the humerus in 3; the lower end of the femur in 3; the lower end of the humerus in one, and in one case in the middle of the tibia. In some of his cases the sarcoma had grown to enormous size. His experience has confirmed that amputation or disarticulation is necessary in the rapidly developing sarcomas involving the soft parts, but under other conditions resections into sound tissue seem to give as durable results as amputation.

Revista de Medicina y Cirugía, Havana

Sept. 25, 1919, **24**, No. 18

Total Irreducible Prolapse of the Rectum. R. Stincer.—p. 459.

Revista Médica Cubana, Havana

March, 1919, **30**, No. 3

The Causal Germ of Influenza. L. Plasencia and others.—p. 115.

April, 1919, **30**, No. 4

The Medical Press and Scientific Hispano-Americanism and Pan-Americanism. J. Santos Fernández.—p. 201.
Amputation of Tuberculous Mamma. D. González Mármol.—p. 209.
Aneurysm of the Aorta; Two Cases. A. Castillo y Martinez.—p. 212.
History of Discovery of Circulation of Blood. M. Tejerizo.—p. 218.
Colloidal Metals and Iodin in Pneumonia. Sobrino Alvarez.—p. 220.

Siglo Médico, Madrid

Aug. 30, 1919, **66**, No. 3429

*Case of Fröhlich's Adiposo-Genital Syndrome. A. Crespo Alvarez.—p. 713.
The Differential Blood Count in Epileptics. R. Alvarez de Toledo.—718. Conc'n.

Adiposogenital Syndrome.—In the case described by Crespo with the roentgenogram of the hand, the subnormal temperature, eunuchoid voice, rounded outlines suggesting the feminine type, especially at the breasts and abdomen, and the atrophy of the genital organs in the young man were accompanied by atrophy of the optic nerve, headache, and slight bulging of some segment of arm or leg. He theorizes to explain the evidently complex glandular action in this case.

Sept. 6, 1919, **66**, No. 3430

*Treatment of Morphin Addiction. Cesar Juarros.—p. 739.
Treatment of Helminthiasis in 1750. B. Hernández Briz.—p. 740.

Treatment of Morphin Addiction.—Juarros comments on the constantly increasing numbers of morphin addicts, and emphasizes that treatment must be individualized, using the abrupt or the gradual method of suppressing the drug according as the patient is young, with the habit acquired within three years, the doses not over 2 gm. at most, and the viscera sound, or as the habit is of long standing and large amounts of morphin have been regularly taken. In this latter group, abrupt suspension is dangerous, especially if the patient is over 40, and has organic disease of any kind, particularly of the cardiovascular system. Strict individualization is necessary, even for the purges ordered. The lack of this is responsible for the many addicts whose cases are considered beyond redemption because two or three courses of treatment have failed. Juarros reiterates that 99 per cent. can be cured without fail if the physician can refrain from imposing his favorite method of treatment on all alike, and will remember that psychotherapy is an indispensable adjuvant. He prefers Sollier's technic for rapid suspension and Jennings' for the slow method.

Sept. 13, 1919, **66**, No. 3431

*Ferran's Vaccination Against Tuberculosis. Angel Pulido.—p. 761.
*Induced Therapeutic Pneumothorax. A. Gutiérrez-Gamero and J. H. Cerdeiras.—p. 764.
*The Psychology of the Insane. H. F. Delgado.—p. 768. Com'd in No. 3430, p. 737.
*Indirect Surgical Treatment of Gastric Ulcer. Celestino Alvarez.—p. 770. Conc'n.

Ferrán's Vaccination Against Tuberculosis.—See Madrid Letter, Oct. 4, 1919, p. 1074.

Induced Pneumothorax.—Gutiérrez-Gamero and Cerdeiras trace the history of therapeutic artificial pneumothorax back to Baglivi's communication in 1669 on the frequent healing of pulmonary tuberculosis after a wound opening up the pleural cavity. Stokes in 1838 called attention to the way in which pulmonary lesions began to heal after spontaneous pneumothorax, but Forlanini in 1882 suggested artificial pneumothorax and in 1892 began to apply it systematically in treatment. This article pleads for its application early in pulmonary tuberculosis, not waiting until it is the last resource. This delay has materially hampered the progress of this valuable method of treatment and brought undeserved discredit on it, as more has been asked of it than it is capable of accomplishing. The technic is described in detail and it is emphasized that this "collapse therapy" does not conflict with any other therapeutic measures. In fact, it may smooth the path for them to be effectual. Fully 60 per cent. of the patients whose condition indicates artificial pneumothorax can be restored to normal life by this treatment they reiterate in conclusion.

The Psychology of the Insane.—Delgado explains that "deep in the soul of every one the lost Paradise lies buried, out of sight but alive, still inducing its magic seduction." . . . "Conduct is the result of the interaction between our response to the world of reality and to this inner seduction of the lost Paradise, and what we call sanity and insanity depends on which of these two forces elicits the predominating response."

Indirect Surgical Treatment of Gastric Ulcer.—Alvarez explains certain cases of gastric ulcer as the result of the excessive action of the sympathetic nerve innervating the stomach. This nerve has both a sensory and secretion-promoting function, and likewise a vasoconstricting action. When functioning to excess, there inevitably follow hyperchlorhydria and hypersecretion at the same time as anemia of the mucosa. The vasoconstricting influence deprives the mucosa of its proper nourishment and leaves it defenseless against the extra corroding action of the hyperchlorhydria which acts on the mucosa abnormally long on account of the hypersecretion. A further factor is the spastic closure of the pylorus from the irritation induced by the hyperchlorhydria. The whole train of phenomena can thus be traced to the excessive functioning of the sympathetic, and this he attacks by stretching the nerve involved to induce, as he says, *conmoción á distancia del gran simpático torácico.* He has thus treated 53 patients and reports 25 completely cured and 8 improved. The outcome is not known in 10 cases and no benefit followed in 10 others. In the cases of failure, organic stenosis of the pylorus was evidently a factor, and this contraindicates this method, he says. He describes the technic and gives the details of a number of typical cases. Lately he has been restricting the intervention to stretching the fifth intercostal nerve on both sides. At first he acted on the sixth, seventh, eighth and ninth. The nerves are severed and each is stretched with forceps aiming to act on the great sympathetic and the semilunar ganglia and through them on the nerve fibers passing directly to the stomach. The consequence is an immediate vasodilation with hyperemia of the gastric mucosa, suppression of the hyperesthesia and hypersecretion, and as the consequence of this, arrest of the tendency to spastic contracture of the pylorus, and hence normal evacuation of the stomach contents.

Tribuna Medica, Rio de Janeiro

July 15, 1919, **25**, No. 14

*Diagnosis of Syphilis from the Spermatic Fluid. V. Widacovich.—p. 137.

Diagnosis of Syphilis from Spermatic Fluid.—In this communication Widacovich brings down to date the experiences of which a summary was given in THE JOURNAL, May 3, 1919.

Vida Nueva, Havana

July, 1919, 14, No. 7

*Etiology of Yellow Fever. M. G. Lebredo.—p. 145.
Trelles' Compilation of the Medical Bibliography of Cuba. Octavio Montoro.—p. 155.

Etiology of Yellow Fever.—Lebredo is chief of the section on research and epidemiology of the national public health service in Cuba, and he is also a member of the Rockefeller commission that has been studying yellow fever in Guayaquil and elsewhere. He discusses Noguchi's recent announcements in regard to the leptospira as the possible agent of yellow fever, and points out certain discrepancies in the data presented. He adds that a final judgment is impossible until the maximal test has been made, the test of transmission by the mosquito.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

Aug. 9, 1919, 2, No. 6

*Paralysis of the Tibialis Anticus. H. A. Laan.—p. 405.
*Asphyxia of the Newly Born. P. J. Mink.—p. 413.
*Marriage in Relation to Mammary and Uterine Cancer. J. Sanders. —p. 416.
*Typhoid Cholecystitis in Boy of Fourteen. G. J. J. van Berckel.—p. 418.

Paralysis of Tibialis Anticus.—Laan has already published three comprehensive articles on the sequelae of poliomyelitis, seeking to determine the best technic for orthopedic treatment in the individual case. He here discusses what is to be done for isolated paralysis of the tibialis anticus, reporting 75 cases, including 4 with bilateral paralysis, thus a total of 79 cases. There was paralysis in the thigh or in the other leg besides in 46 cases, bilateral in 17. The literature has dealt mainly hitherto with paralysis of the tibialis posticus. In none of the 79 anticus paralysis cases was any improvement in the paralysis observed; the paralysis or the weakness persisted unmodified. In 70 cases the paralysis dated from before the fourth year and in 48 there had been no attempt at orthopedic treatment although the paralysis was of up to six years' standing in 30 and from seven to eighteen years in 18. All kinds of treatment had been applied except operative and orthopedic measures. Some of the patients could only crawl, and some others could not do even this. After the operation the patients have to be left in others' hands, and it is important to make the after-treatment as simple as possible. Massage and electricity have to be omitted on this account and the main reliance placed on keeping the foot in a good position and getting the patient on his feet. In 10 of the cases only special shoes were found necessary to accomplish this; in 32 a walking stirrup was provided which was worn at night also; in 38 special shoes were worn during the day and a correcting apparatus at night. Only 2 of the total number were unable finally to walk unsupported. The war has compelled revision of the results of treatment of infantile paralysis. This has emphasized the necessity for classifying cases for treatment by the age, and also the possible necessity for resection of the plantar aponeurosis and of the skeleton of the foot. Too much stress used to be placed on tendon transplantations, etc. In his own series the outcome is not known in 11 and 3 have died since. The outcome was poor in 12, but in all the 44 other cases the treatment may be considered a success. The most favorable results were obtained when the extensor digitorum was utilized in place of the tibialis anticus. Only once did it fail when fastened along the anticus without being cut. In all the other cases it seemed to answer the purpose excellently, and it never exerted too strong traction. In a few cases only half the muscle was utilized. Its normal function is not missed, the extensor hallucis and the two peroneus muscles assuming its function. He reiterates that it is thus possible to obtain much better results than formerly believed attainable. He describes typical cases of the seven different forms in which this paralysis may present itself, with the orthopedic indications in each group. The greatest difficulty is from paralysis of other muscles which make excessive demands on the correction. But it is in these very cases that the greatest benefit may be realized, comparatively speaking, freeing the children from apparatus and reducing the crippling to the minimum.

Asphyxia of the Newly Born.—Mink explains that no air can get into the lungs of the new-born child so long as the entrance to the trachea is closed, and there is nothing to impel the air to enter the trachea if the vocal cords are impacted together. But a brisk downward movement of the diaphragm induces a vacuum and the air rushing in forces the cords open. The change from the uterus to the air of the room is such a sharp stimulus to the skin that by the resulting reflex action the diaphragm is usually forced downward and respiration is inaugurated. Schultze's swinging of the infant, he thinks, is merely another form of stimulating the skin, as even this is unable to force air into the trachea so long as its opening is obstructed .He recalls that stimulation of the nasal mucosa is a more potent source of reflex action on the diaphragm than can be realized from the skin. Tickling the nasal mucosa at its most sensitive point—perhaps with a feather—is an old measure. Its action might be promoted by ammonia or irritating gases. Clearing out the nose might facilitate matters; this is easily accomplished by blowing air from a rubber bulb into first one nostril and then the other. This forces out the mucus, etc., through the second nostril. From the theoretical standpoint, stimulation of the nasal mucosa should rank above all other measures for combating asphyxia neonatorum.

Cancer in the Married.—Sanders tabulates the statistics of cancer of the uterus and breast at Rotterdam 1902-1914. They show that cancer of the uterus is more prevalent in the married than in the unmarried. Cancer of the breast is also more common among the married up to the age of 40.

Typhoid Cholecystitis.—Van Berckel relates that the thirty-six gallstones found in the gallbladder of the boy of 14 had probably developed since the typhoid which had induced the cholecystitis. Typhoid bacilli were still found in the stools two and four months after the cholecystectomy.

Aug. 30, 1919, 2, No. 9

*Mammary Cancer. H. T. Deelman.—p. 573.
*Hyperthermia. J. R. Kollewijn.—p. 584.

Mammary Cancer.—Deelman reviews the outcome in 582 operative cases of mammary cancer at the Amsterdam public hospital from 1885 to 1915. Among the points thus brought out is that there is at least an 8 per cent. difference in the mortality between the figures for a three year interval and a five year interval. Only 30.6 per cent. were still living five years after the operation of the 245 patients operated on 1885-1911. Only one third of the total operated on were living at the fourth year, and of those that had died in the interim five out of every six had succumbed to cancer or its consequences. A marked change for the better appears in the statistics from 1900 onward, and systematic postoperative raying seems to be improving conditions lately even more. Of the women operated on in 1900-1914, over 42 per cent. are still living. The figures show further that the age between 40 and 50 offers the best chances for survival.

Hyperthermia.—Kollewijn states that there were signs of exophthalmic goiter in two of the eight cases of protracted slight fever he reports, and syphilis was evident in another case. The temperature was persistently above normal, at least during the latter part of the day. Nothing could be found to explain this unless possibly nervousness or hysteria could be incriminated. He thinks that "nervous fever" might be found oftener if it were regularly sought for. At the same time he thinks that this can scarcely be accepted as the explanation for cases in which the temperature keeps above 38 C. (100.4 F.) for a long time. With men, syphilis should be suspected; with women impending exophthalmic goiter. If the temperature keeps below 38 C. there is scarcely need to interfere with the patient's occupation, but if it keeps above 38 bed rest is safer.

Correction.—The duplicated line in the first column of page 872 of THE JOURNAL, Sept. 13, 1919, should read (instead of "Desiccated Bacteria for Biologic Tests.—Signorelli says") "Nitrogen Metabolism.—Maragliano states that the research."